DOCUMENT RESUME

ED 361 595 CE 064 622

AUTHOR Adams, Dewey A.; And Others
TITLE Diamond Anniversary Lecture Series.
INSTITUTION Ohio State Univ., Columbus. Dept. of Agricultural Education.
PUB DATE 93
NOTE 46p.
PUB TYPE Collected Works - General (020)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Administrator Education; *Agricultural Education; *Educational Administration; Educational Change; *Educational Research; Postsecondary Education; Research Methodology; *Scholarship; Secondary Education; *Student Characteristics; Student Needs; *Vocational Education

ABSTRACT

This document contains the texts of four lectures that were presented as part of a series commemorating the 75th anniversary of Ohio State University's Department of Agricultural Education. The first lecture, "The Conceptualization Process and Vocational Education Management," (Dewey A. Adams) discusses a five-step management behavior approach for use in teaching vocational education administration. "Educating Agriculturalists: New Wineskins for New Wine" (J. David McCracken) deals with the new clientele of agricultural education and the new programs and structures required to serve them effectively. A lecture titled "Scholarship in Agricultural Education: Its Essence and Mood," (J. Robert Warmbrod) examines the elements of scholarship and its role in agricultural education. The final lecture, "Interdisciplinary, Soft, Applied and Other Anomalies in Research: The Future," (Larry E. Miller) discusses the role of research in agricultural education programs, advocates the adoption of a systems approach to implementing research programs and preparing undergraduate and graduate agricultural students to perform research, and stresses the importance of gaining an understanding of social and behavioral science research. Each lecture includes a substantial reference list. (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 361 595

Lecture Series

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

W Budke

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

The Gem Continues to Sparkle

THE OHIO STATE UNIVERSITY

Department of Agricultural Education
1917-1992

CE 064 622

BEST COPY AVAILABLE

FOREWORD

The Department of Agricultural Education was established July 1, 1917, in response to Federal and state legislation that promoted the teaching of high school at the secondary level. From that initial need for teachers, the Department has expanded its mission to include undergraduate and graduate programs in the preparation of teachers, extension personnel, educators in agricultural business and industry, and agricultural communicators. The mission of the Department is addressed through degree programs, inservice education activities, research, and service to the profession and the public in Ohio, the United States, and throughout the world.

The Diamond Anniversary of the Department was observed in a variety of ways. The history of the Department, 1917-1992, was revised and made current, and a condensed version was distributed nationally. Three special newsletters were sent to alumni of the Department, and a gala celebration was held where Diamond Anniversary Awards were presented. A fund drive was conducted in cooperation with the OSU Development Fund to support scholarship and other programs in the Department.

The two-year celebration culminated in the presentation of four Diamond Anniversary Lectures by the Professors in the Department. This document presents those lectures.

Members of the academy are challenged to profess, to practice and be versed in the discipline. Agricultural education, in a variety of settings, is the discipline of the Department, and the professors create and disseminate new knowledge, including theory and practice. The role of the faculty, as members of the academy, includes teaching, conducting research, and serving the public, which is the mission of the land-grant institutions such as The Ohio State University.

These lectures exemplify the role that the faculty in the Department of Agricultural Education play in the academy and the discipline. I appreciate the willingness of my four professor colleagues in preparing and delivering the Diamond Anniversary Lectures, and hope the lectures assist scholars in other institutions and in other years to gain a better understanding of agricultural education in the broadest sense.

R. Kirby Barrick
Professor and Chair
Department of Agricultural Education
The Ohio State University

BEST COPY AVAILABLE

THE CONCEPTUALIZATION PROCESS AND VOCATIONAL EDUCATION MANAGEMENT

Dewey A. Adams, Professor

Professor Adams, a native of North Carolina, earned the Bachelor of Science in Agricultural Education and the Master of Science in Vocational and Technical Education at North Carolina State University, and the Doctor of Education from the University of Florida. He taught vocational agriculture in North Carolina, was a high school principal, and served as an area consultant for vocational and technical education, all in North Carolina. He has served on the faculty at Rockingham Community College, North Carolina State University, and Virginia Polytechnic Institute and State University. He joined the faculty at The Ohio State University in 1976, where he served as chairman of the newly-established doctoral program in Comprehensive Vocational Education. He continues to give leadership to that program as Professor of Agricultural Education, and teaches courses and conducts research in the area of leadership in vocational education. This lecture was presented November 6, 1992.

Introduction

Professional leaders have searched for decades to discover promising approaches for generating and storing, retrieving and applying principles of management to practice in vocational education. The search has generated scores of theories and practices for managers at all levels of the enterprise. From scientific management to leadership traits, to situation leadership, to group dynamics, to contingency theory, to attributes of behavior - all these and many other less well known theories have been described during the past seventy-five years. So many theories and practices have been advanced, in fact, that many vocational education managers, bewildered and overwhelmed, have despaired and simply chosen to "muddle through" as the best alternative to keep their organization effective and themselves alive. Even the concept "muddling through" has been labeled as a viable theory of management practice and recommended as an acceptable management behavior in many situations.

My own teaching, researching and consulting have motivated me to evolve and utilize a management behavior approach which could accommodate use of existing theories, research and practices. Yet this approach is relatively simple to comprehend, practice and teach to others who are or aspire to be vocational education managers. I call the approach simply the Adams Conceptualization Process of Management or ACP for convenience. We use the approach in teaching administration, principles and leadership. Today we will share the essence of this approach with you, respond to your questions and observations and invite your suggestions for further development and application.

Problems to Concepts to Principles to Practice

The ACP approach can be described in five related steps. These steps are:

1. Defining a problem in vocational education management.
2. Selecting a macro concept which relates closely to the problem.
3. Choosing two or more micro concepts which elaborate the macro concept.
4. Generating two or more principles of behavior for each micro concept.
5. Applying the principles of behavior to the original problem and predicting the consequences.

These steps seem simple enough and they are relatively simple and uncomplicated to carry out once a person understands the ACP approach and has some knowledge of the problem area being considered. More challenging of course is the process and product with respect to each principle of behavior and the concepts and research from which the principles were generated. Relevancy and validity with respect to concepts and principles will increase the probability of success when the application is made.

ACP does offer a number of distinct advantages for the contemporary vocational education manager. We'll enumerate some of these and trust that other aspects of this lecture will make these and other benefits of ACP cogent to you.

First ACP makes it possible to store in one's subconscious great numbers of concepts and principles; yet recall each as needed in a matter of seconds for practice, for writing, for new theory building and/or for further research. It gives the human mind more of the capacity of a modern computer but without cluttering the conscious with the multitude of concepts and principles needed for the average day of activity. When the need arises there is instant recall by bringing to mind a macro concept. With the macro concept flows micro concepts and principles which can be applied to problem resolution. Twelve macro concepts may be adequate for a lifetime of management practice, theory-building and/or research if the right choices are made.

Secondly ACP makes it possible to focus on the most promising theory when generating principles of behavior to apply to problems in practice. As one studies the results of research, as one generates new knowledge, as one practices management and as one evaluates the results of management decisions, the concepts and principles retained are refined and improved. Those with promise are tied to a macro concept and thus retained. Others are forgotten.

Thirdly, ACP makes it possible to predict the consequences of one's behavior before the behavior is exerted. The nature of principles generated from micro concepts accounts for this advantage. Obviously, the more one studies research and practices management, the more accurate one's predictions become. More will be said about the nature of principles in the next section of the paper.

Some Unique Definitions

Perhaps as any scientist or professional would do, we should define a couple of the terms we have used thus far and will continue to use in the remainder of this lecture. These unique definitions will help you to be more empathetic with us as we describe the ACP approach. These terms are not new but are probably defined and used in a manner uncommon to the mainstream of professional education.

Concept

Concept is defined as a word or minimal (2-4) number of words to which we assign a special meaning. The meaning is generic and in the context of education or vocational education. For example, when we define power as the capacity to influence the behavior of others, it becomes a concept. It can be thought of as being useful and applicable in a number of situations. It has a generic or generalized meaning with structure and function. It can have micro or subconcepts or it can be a subconcept to a macro one. It has depth, richness and wide application within the meaning it was given. It can quickly give rise to principles of behavior.

Principle

Principle refers to an if....then kind of statement, a notion of how something works or someone behaves. It is a theory about human behavior but tends to be based upon enough research and/or practice as to be reliable when explaining, describing and/or predicting human behavior. It is probably somewhere between tested theory and empirical law. It is more than a statement of truth or simple fact. To meet the definition, a statement will contain two or more variables in relationship to each other. Some of Charles Prosser's Principles meet this definition as we will note in later comments.

An Example of the Process

One of the most demanding tasks of the contemporary vocational education manager is promoting the growth and development of staff. It is so crucial, in fact, that many management experts have ranked

this task when combined with initial employment as the number one activity essential for the successful manager and productive organization. Several problems for the manager concerned with this task comes quickly in focus. How does one assure competent and promising staff? What can be done to enhance the work of new staff? What experiences will promote the renewal of experienced staff? While we might demonstrate ACP with any one of these problems, we will choose the second one for this demonstration. What can be done to enhance the work of new staff?

Problem

A more specific statement of the problem dealing with enhancing the work of new staff might be the following. A new supervisor has been employed to work with twelve teachers in Agricultural Education in a career center or vocational high school. This person is new to teachers, the school, the community and to other peers in the center. How does the manager go about preparing this new supervisor for new responsibilities in such a way as to enhance the level of success of this person during the initial period of employment?

Macro Concept

Several macro concepts may come to mind for the manager or those of us who are considering the problem. Some of these might be orientation, introduction, staff support, peers, information, induction, mentor, coach, staff development and consultation. Serious thought by persons with even limited management knowledge and experience tends to point toward induction as the most suitable macro concept. Induction might be defined as the planned environment for a new staff member during the first year of employment. Some have defined it as the process of admitting a new person to membership in the organization. These definitions confirm the appropriateness of the choice of induction as the most relevant macro concept.

Micro Concepts

The process becomes somewhat more difficult at this point. It is essential for the micro concepts we select to be congruent with the macro concept and simultaneously to identify the induction activities which are of highest priority for the manager in working with the new supervisor. A helpful question to ponder is what are the least number of activities in induction which will result in greatest dividends? As with the macro concept, it may become necessary to identify or recall five or six micro concepts and then narrow the choices to a couple of the most relevant. From what has been learned from theory, research and practice, two micro or subconcepts come to mind fairly quickly. These are mentoring and orientation. Mentoring is defined as a nurturing process in which a more skilled or more experienced person teaches, sponsors, encourages, counsels and guides a less skilled or experienced associate. Orientation is defined as the initial induction of a new employee to the work environment. Which there are other micro concepts which elaborate induction, these two are appropriate choices for the example we are sharing.

Principles

Similar to the process of selecting micro concepts, the process of generating principles of behavior calls for creative thinking in order to generate those principles which seem to offer more promise for solution of the original staff problem. Following are two principles of behavior for mentoring and two for orientation which seem relevant and highly promising.

Mentoring - Principle One: The more congruent the behavior of the mentor and mentee, the more quickly the new supervisor will become a team member. Principle Two: The more open and candid the mentor the fewer concerns the mentee will bring to the manager.

Orientation - Principle Three: First impressions tend to be lasting impressions. Principle Four: The more complete the orientation, the more quickly the new supervisor will handle responsibilities independently.

Some would question the limitation of two principles for each micro concept. Why not five for each one? Indeed more could be generated and at times more will be needed. But herein lies a caution for the manager. Managers personally can do only a few things and they need to do these few things well. To select the few most promising and relevant principles is recommended over selecting a multitude, many of which would make little difference in the induction process. Better to select the least number which will bring the greatest benefit to the process.

Application and Prediction

Principle One. "The more congruent the behavior of the mentee and mentor, the more quickly the new supervisor will become a team member." The manager following this principle in planning for the new supervisor's induction will want to influence the selection of a mentor, maybe another supervisor, who shares behavioral attributes with the mentee. Among such attributes might be achievement orientation, insightfulness, optimism, intelligence, integrity, value orientation, education and work experience. If congruence can be established with the mentor assignments, the manager can predict that the new supervisor will more quickly feel a part of a new organization, will assume responsibility sooner and more completely and will be happier and more satisfied with the new assignment. Managers who know their people well will enjoy success in this process. Those who don't and consequently influence incongruent assignments are likely to observe frustration, dissatisfaction, low morale and longer time requirements in developing team spirit. For some there will be higher levels of staff turnover.

Principle Two. "The more open and candid the mentor, the fewer concerns the mentee will carry to the manager." Experienced managers seem to sense this behavior on the part of a new employee and will even instruct mentors on behaviors which will reduce the number of concerns new employees will bring to the manager. This may be another "mystery or secret of the trade" but used by managers rather than craftsmen. A good match between mentor and mentee (note principle one) is the first step toward application of this principle two. Thorough knowledge by the manager with respect to new employees and those with tenure and experience who might become mentors is another important step or ingredient in mentor appointments or designations. Yet a third positive step might be for the manager, mentor and mentee to review periodically and regularly how the mentoring process is progressing and what might be done to improve it. The successful application of this second principle will enhance the independence of the new employer and free up time for the manager to devote to other matters.

Principle Three. "First impressions tend to be lasting impressions". The initial impressions we get of a new person, a new organization or even a new idea tend to linger with us for a relatively long period of time. If first impressions are positive, we tend to feel good or satisfied, believe we are in a good situation and will handle difficult assignments or negative events for a long period of time before becoming discouraged and pessimistic. Conversely if first impressions are negative we are quick to point out problems, become discouraged easily and may even seek other associations rather quickly. Managers who follow this principle three will plan thoroughly and thoughtfully to assure that the orientation of a new staff member is highly positive. Such a process will require time of the manager and other key leaders. Contacts planned for a new supervisor, information which will be shared, questions which will be answered and activities which will be planned are structured and carried out with confidence that first impressions of the new supervisor will be highly positive.

Principle Four. "The more complete the orientation, the more quickly the new employee will handle responsibilities independently." This independent behavior might be labeled more accurately interdependent. When the new employee has a very thorough and supportive orientation, the employee

will consult as needed and then assume and carry out new responsibilities. Valuable time can be saved for later use in the process. It means the manager and other significant leaders in the work of the new employee will devote enough of their time and resources to the orientation process to assure that every important activity is planned, assigned and carried out. The orientation extends over a long enough period so as to be complete, leaving few if any unanswered questions and concerns. Unfortunately too many orientations are what an old farmer once labeled "a lick and a promise." "Here's your office. Mrs. Jones can help you with any questions you have. I'll see you at the staff meeting next Friday."

Using ACP In Other Courses and Settings

It was revealed at the outset of the lecture that the conceptualization process was utilized as a method or strategy in other graduate courses including Principles of Vocational Education and Leadership Development. In the principles course not only is this process employed, but contrasts and comparisons are noted among principles as generated by Charles Prosser, Melvin Barlow, Melvin Miller and Dewey Adams. It might be useful at this juncture to show some of these differences and similarities. We'll use two of the steps in ACP in sharing this comparison and contrast. We'll start with a micro concept and select one principle of behavior from each writer. Perhaps this activity will make clearer the nature of a principle as viewed by this writer in the ACP approach. Three micro concepts are used in the demonstration.

Concept One: Community Needs

Prosser

Vocational Education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and manipulative habits required in the occupation.

Barlow

Vocational Education reflects and anticipates the changing attitudes and values of society as well as the changing requirements of business and industry.

Miller

Needs of the community are reflected by programs of vocational education.

Adams

Vocational Education which reflects the needs of the community contributes to student interest, public support, relevant teaching and learning, student placement, economic growth and stability and high employment level.

Concept Two: Teacher Competence

Prosser

Vocational Education will be effective in proportion as the instructor has had successful experience in the application of skills and knowledge to the operation and processes he undertakes to teach.

Barlow

Vocational Education requires a competent staff with expertise in the fields for which they are responsible.

Miller

Teachers of Vocational Educational are both professionally and occupationally competent.

Adams

When Vocational Education teachers are technically and professionally competent, student interest, growth and career advancement are enhanced; dropouts and discipline problems are less likely to occur; and community support and program image will be improved.

Concept Three: Work Experience

Prosser

The effective establishment of process habits in any learner will be secured in proportion as the training is given on the actual job and not on exercises and pseudo jobs.

Barlow

Vocational Education is more effective when it occurs in the context that either is or simulates the actual job experience.

Miller

Supervised occupational experience is provided through Vocational Education.

Adams

Supervised occupational experience enhances learning, competence and confidence of vocational students and gives them a head start when they enter the world of work.

Summary, Conclusions and Future Developments With Respect to ACP

We have shared in this first of four lectures in celebration of the Diamond Anniversary of the Department of Agricultural Education a conceptualization process which may be used to generate and store information, retrieve and apply this information to vocational education management. Five steps in the process have been described. These are: problem definition, macro concept selection, micro concept elaboration, principle generation and practice application. The process allows prediction of results prior to application of principles. In this approach the manager can exert the behavior expected to result in desirable outcomes.

We indicated some distinct advantages and benefits of the process. A great number of concepts and principles can be stored in the subconscious for instant recall and utilization when needed. Focus can be upon the most promising theories and research for resolution of management problems. Consequences of the manager's behavior can be predicted with reasonable confidence and behavior can be altered when other consequences are desirable.

Unique definitions were given to terms such as concepts and principles. Macro and micro concepts were contrasted and application of principles to practice was detailed. To add clarity to the nature of principles as used in the ACP approach, several principles contributed by Prosser, Barlow, Miller and Adams were contrasted and compared. These principles varied from a simple statement of truth or fact to an if .... then kind of statement which described, explained and predicted human behavior.

We believe ACP offers promise as an approach to cognitive map structuring, information storage, information retrieval, information application, teaching, writing, speaking and doing research. Development and refinement of this process are just beginning and we anticipate accelerating development in the days ahead. We invite your comments, questions and suggestions for what we believe will be an exciting venture.

References

Adams, Dewey A. Principles of Vocational Education. Columbus, Ohio, January 2, 1990. (Unpublished paper).

Barlow, Melvin L. Policy Making for Vocational Education. Los Angeles, California: University of California. November, 1975.

Bass, Bernard M. Stogdill's Handbook of Leadership. New York: The Free Press, 1981.

Bennis, Warren. Learning Some Basic Truisms About Leadership, National Forum. Winter, 1991, pp. 12-15.

Camp, William G. and Heath, Betty. On Becoming a Teacher: Vocational Education and the Induction Process. Berkeley, California: National Center for Research in Vocational Education. December, 1988.

Culligan, Matthew J. et al. Back to Basic Management. New York: Facts on File. 1983.

Duane, Josann et al. Mentoring and Other Forms of Career Support Among Faculty. Columbus, Ohio: Ohio State University. June, 1989. (Unpublished paper).

Educational Research Services, Inc. Orientation Program for New Teachers. Richmond, Virginia: Department of Education. 1977.

Ehrenberg, Sydelle D. "Concept Learning: How to Make it Happen in the Classroom," Educational Leadership. October, 1981, pp. 36-40, 43.

Finch, Curtis R. et al. Leadership Behaviors of Successful Vocational Education Administrators. Berkeley, California: National Center for Research in Vocational Education. March, 1991.

Finch, Curtis R. and McGough, Robert L. Administering and Supervising Occupational Education. Prospect Heights, Illinois: Waveland Press, Inc. 1991.

Frutchey, Fred P. Some Thoughts Concerning the Meaning of a Concept. Washington, D.C.: Federal Extension Service, United States Department of Agriculture. December, 1966. (Unpublished paper).

Loyd, C. Michael, et al. "Mentors Make it Easy," Vocational Education Journal. September, 1991, pp. 30-33.

Miller, Melvin D. Principles and a Philosophy for Vocational Education. Columbus, Ohio: National Center for Research in Vocational Education. 1985.

Moss, Jerome, Jr. and Johansen, Barry Craig. Conceptualizing Leadership and Assessing Leader Attributes. Berkeley, California: National Center for Research in Vocational Education. June, 1991.

Paulter, Albert J. Jr. (Ed) Vocational Education in the 1990's: Major Issues. Ann Arbor, Michigan: Prakken Publications, Inc. 1990.

Prosser, Charles A. and Allen, Charles R. Vocational Education in a Democracy. Chicago, Illinois: American Technical Society, 1949.

Russell, Peter and Evans, Roger. The Creative Manager. San Francisco: Josey-Bass Publishers. 1992.

Stallion, Brenda K. Classroom Management Intervention: The Effects of Training and Mentoring on the Individual Teacher's Behavior. Columbus, Ohio: Ohio State University. 1987 (Unpublished Doctoral Dissertation).

EDUCATING AGRICULTURALISTS: NEW WINESKINS FOR NEW WINE

J. David McCracken, Professor

Professor McCracken received the Bachelor of Science and Master of Science degrees in agricultural education from Iowa State University. He taught vocational agriculture in his native Iowa before completing the Doctor of Philosophy in agricultural education at The Ohio State University. He served as a Research and Development Specialist and Assistant Director for the Center for Research in Vocational Education at Ohio State before joining the faculty in Agricultural Education in 1973. Professor McCracken teaches courses in research methodology and conducts research in rural education.This lecture was presented January 15, 1993.

Introduction

An ancient wine making process (Davis & Gehman, 1944) involved the treading of grapes in an upper vat placed over a lower vat. The juice was collected from the lower vat and put into bottles of skin. These bottles, made from the skin or hide of animals, were commonly referred to as wineskins.

In excavations near the junction of the Great Zab and Tigris rivers, in the country that is now known as Iraq, archaeologists discovered information they used to describe a banquet that had been held for nearly 70,000 guests in about 880 B.C. (Pfeiffer, 1966). The authors estimated that, in addition to 2,200 oxen and 16,000 sheep, 10,000 skins of wine plus other beverages were consumed. Once a wineskin had been used for wine, it was not to be reused.

The New International Version of the Bible in Matthew 9:17 informs the reader of the importance of using new wineskins for new wine. We read:

> Neither do men pour new wine into old wineskins. If they do, the skins will burst, the wine will run out and the wineskins will be ruined. No, they pour new wine into new wineskins, and both are preserved.

It is from this verse of scripture that the title for my presentation was derived. Dr. N. L. (Mac) McCaslin and I were brainstorming possible titles when he suggested the Biblical reference to wines and wineskins. During this presentation wine will represent the clientele to be served by agricultural educators and wineskins will represent the programs and the structure used to offer instruction in agriculture to individuals and groups. It will be my contention that the new clientele who must be served, if we are to survive as a discipline, will require new programs and structures. Our old programs and structures (our old wineskins) are simply unable to reach and serve the new clientele (the new wine) that must be served.

It will be my thesis that to attain the future we need for agricultural education, we must do more than tinker with what we now have; we must, as Gordon Swanson (1991) suggested, undergo a thorough transformation. In 1982, in my distinguished lecture to the American Association for Agricultural Education, I indicated that the leaders in our profession needed to work together in charting a new course for the future. I suggested the need for intellectual discussion and debate concerning the future nature of the program (McCracken, 1983).

The topic I have chosen for today will also require that we think about possible future roles for agricultural education. I do not claim to be a prophet. Hoffer (The Passionate State of Mind, 1954, p. 238 in Tripp, 1970) stated that "the only way to predict the future is to have power to shape the future." While it is obvious that we lack such power we can accept the futurist's role of putting forth ideas and seeing how people react to them. How people react to these ideas then gives some indication about possible future program direction. Our task then is not to foresee the future, but to enable it (The Wisdom of the Sands, 1948, p. 238 in Tripp, 1970).

Thomas Fuller in 1732 was quoted as saying, "He that fears not the future may enjoy the present" (Gnomologia, p. 238 in Tripp, 1970). Our problem is that we may be enjoying the traditions that have brought us to our present condition so much that our future may be more insecure than we might realize. We need to reconsider programs and structures (the wineskins) now in place and the extent to which these programs and structures are effective in ministering to the clientele (the wines) who must be served.

The Worn-Out, Cracked, Torn, and Mended Wineskins

In the ninth chapter of the book of Joshua in the Old Testament of the Bible the inhabitants of Gibeon deceived the people of Israel by resorting to deceit. They went as a delegation whose donkeys were loaded with tattered and threadbare sacks and wineskins that were worn-out, cracked, torn, and mended. Because of this ruse, the people of Israel thought they had come from a far country rather than from nearby. Obviously, wineskins were unable to stand the rigors of a long journey.

What is there about agricultural education that has continued too long, that has not kept up with the times? What wineskins have become worn-out, cracked, torn, and mended? In what ways has our journey with the same old wineskins been too long? As we examine the programs and structures that have served us well for many years we find the secondary program attempting to rely on a curriculum based upon the needs of the local community rather than the needs of a global agriculture, supervised experience based upon agricultural production rather than agricultural science and agricultural marketing, the FFA youth organization giving the lion's share of awards to farm youth, school laboratories which encourage students to practice outdated skills in agricultural mechanics, problem-solving as an approach to teaching using contrived problems because students are not experiencing the curriculum, continuing education for adults that is fading away to non-existence, a clientele consisting of rural residents when the growing portion of the population is in metropolitan America, and a weakened federal and state leadership for program development and supervision.

Swanson (1991) proposed a review and renewal of these institutional functions and structures in agricultural education. He indicates that there is currently too much of a glow of self-indulgent optimism which flows from unquestioned faith in any self-serving ideology. As one example, agricultural educators concerned with public school education in agriculture have had unquestioned faith in supervised experience programs.

Supervised Agricultural Experience

Experiential learning has been a part of public school education in agriculture since its inception. Those familiar with the history of agricultural education are aware of such terms as supervised practice, supervised farming programs, supervised occupational experience programs, and supervised agricultural experience. All of these terms describe the interrelationships among teachers, students, parents, and sometimes employers in providing experiential learning opportunities. The traditional programs expected students to raise crops or livestock, improve their homestead, and develop competencies by learning to do supplementary farm practices. Students were expected to grow into an occupation.

If supervised practice is so good, why would I consider it to be a cracked or torn wineskin? Even though it is a goal that 100% of the students have a planned program of supervised practice, most estimates show that, at best, about one-third of the students actually participate in supervised agricultural experience (SAE) programs. Even fewer participate in SAE programs that relate specifically to the classroom instruction in which they are participating. If the food is so good, why isn't it being eaten?

One suggestion has been to rely more on cooperative education student placement, or work experience programs in industry as a way to update and improve supervised agricultural experience programs. But let me read you a quote indicating concerns about programs of this nature. Work study programs have been established:

.... in high schools to make sure tomorrow's work force has the skills we need.... But a number of observers believe that these programs aren't preparing students for higher paid, higher-skilled work, but rather are narrowing their options--and their thinking.... Students in work study programs learn few academic or technical skills and almost nothing at all about independent thinking.... Many business partners don't train students--they use them as cheap labor. Most work-education proposals and experiments discourage independence and creativity in the country's younger generation.... America in the year 2000 may see an increasing gap between a professional elite that can master technology and a large group of workers paid peanuts to press buttons. And education programs that channel students into specific dead-end jobs, rather than teaching skills that might be applied in a variety of careers, will offer them few alternatives to peanuts. (Rebeck, 1992, pp.34-35)

Leske (1992) claims that we have viewed experience as the important aspect of supervised agricultural experience. However, he suggests that experience without reflection does not directly equate with learning. He indicates that:

> We need to move beyond habit formation and simple transfer of what was presented in the classroom to a truly experiential learning process.... We need to produce students who know how to learn, think, and solve problems.... The missing link in experiential learning identified by most people is reflection.... [Students] who participated in structured reflection felt that they learned more from their experiences than those who did not have structured reflection built into their programs. (p.3)

Supervised agricultural experience, as it is currently structured, may be a wineskin that has outlived its usefulness. The design of the program has failed to keep up with the times. The majority of students are not participating in it. It is a wineskin that must be made new, amended, or discarded.

The Agricultural Education System

Would any reasonable person design an agricultural education system for the United States from scratch end up with a structure similar to what is now in existence? I doubt it.

> Agricultural education now functions as a collection of independent and competing republics with overlapping budgets, boundaries and missions....If one's only source of information about agricultural education were the United States Department of Agriculture (USDA), the United States Department of Education (USDE) or the state and local subsidiaries of one or the other of these two federal departments, one would get a very incomplete and distorted picture of agricultural education in the country.... Agricultural education is among this nation's most territorialized activities and it should be no surprise to see institutionalized larceny as a fully accepted way of handling competing claims. (Swanson, 1991, p.2)

Adult Education

Nowhere is this overlap of function more apparent than in adult education. The Cooperative Extension service has been charged with the responsibility to provide "informal" adult education to extension clientele. The public school system accepted the responsibility through federal legislation to offer "formal" adult education to the same clientele. Much has been made over the years of the difference between the terms "informal" and "formal". The public school system has failed to fund adult education in an amount sufficient to maintain the program. The public school system has also failed to provide adult education in an effective way to adults outside of production agriculture. Adult education in the public schools is a broken, torn, and worn-out wineskin.

Federal and State Leadership

Leadership for agricultural education in the public schools has come traditionally from the federal to the state to the local systems. However, the United States Department of Education and the state departments of education have failed to maintain staff sufficient to provide the required level of leadership. Local teachers and school systems are now having to make decisions that were made for them in prior years. Little assistance is being provided for teachers struggling to maintain program quality in the face of difficult local financial situations. Federal and state leadership for agricultural education in the public schools is a torn wineskin that has already been discarded.

Middle School Programs

Expansion of public school education in agriculture into the elementary and middle schools has been suggested as a way to meet the need for agricultural literacy and for exploration of agricultural careers. While, on the surface, this seems like a good thing to do, there have been problems with implementation. A major goal of this effort should be to expand the base of clientele to non-traditional groups. However, Rossetti and others (1992) found that two-thirds of the middle school students enrolled in agricultural programs were male and that the majority were white and lived in the country. Even though elementary and middle school education in agriculture is considered to be innovative, unless this concept is used to reach new audiences, it will become a new wineskin that has burst.

Other Problems

There are many more worn-out wineskins. I will mention just a few. Swanson (1991) indicated that agricultural educators have a tendency to commit to the one best way of doing things; they tend to reject pluralism and expect all within the profession to give unearned loyalty to an ideological rigidity.

Teacher educators in agriculture, for many years enjoyed the privilege of providing instruction to future teachers of agriculture who were assured of being hired as a teacher if they met the minimum expectations. Jobs were plentiful and the number entering the profession was insufficient for the demand. The present and the near future has a much different outlook. The demand is insufficient for the supply. Teacher educators can no longer be assured that the number of people needed will be enough to justify an agricultural education program having teacher education as its singular mission. In many states there has been a reduction in resources to teacher education. Newcomb (1992) reported that declining enrollments, the demise of agricultural education in state departments of education, and less demand for teachers are forces inducing change in university programs of teacher education. Teacher education in agriculture is a deteriorating wineskin.

Agricultural educators have a tendency to treat the symptoms rather that the disease. We want to broaden the mission but we don't want to change the FFA organization or awards program. We want to serve urban students but we insist on their having an SAE program patterned after the one designed for rural farm students. We want a continuing education program for adults but we only want to serve the shrinking population of farmers, and we also expect teachers to conduct adult programs as an extra duty. Swanson (1991) said that "unless agricultural education designs a future for itself which includes introspection, a holistic view, and the ideas of friendly internal critics, any criticism directed at the field in the future is likely to be an understatement."

I have talked enough about our wineskins that are worn, broken, torn, deteriorating, and in some cases mended. There are others I could have discussed, but you have some idea of my concern. My next concern will be with the wine, the clientele, that we are currently attempting to serve with the programs we now offer.

The Vinegar

Wine, when it is fermented too long, becomes vinegar. Our clientele, served in an excellent manner over a period of many years, may not have the same needs or the same qualifications that agricultural education clientele did at the time that our programs were developed.

Who are our clientele? The major client group served by agricultural education in this century has been white male farm youth. In more recent years the profession has had some success in expanding the client base to the female one-half of society. There has also been some limited success in recent years in serving the non-farm sector of American society.

At the secondary level, the early legislation limited the major client group to farm youth above the age of 14 preparing for farming at a career. This was a group that had not been well-served by the secondary education system of that day. The emphasis in that era was on liberal education for the few rather than practical education for the masses. The legislation passed in the 1960s allowed agricultural education at the secondary level to expand by serving youth of both sexes who were preparing for farm and non-farm agricultural occupations.

Legislation passed since the 1960s has not been totally favorable to agricultural education. Major emphasis in more recent years has been placed on serving disadvantaged and handicapped youth. This has put agricultural educators in a dilemma. While agricultural educators has always been willing to serve students of all ability levels with a broad range of backgrounds, the expectation that the primary audience would be those who might be disadvantaged and handicapped has made it difficult to serve the required student clients and also the employment needs of the agricultural industry. It is unlikely that a future generation of agricultural scientists can be prepared from the population of students vocational education is designed to serve. It is extremely difficult to make good wine from sour grapes.

Many of the goals which have been adopted for American education suggest that we will be first in the world in a number of educational achievement measures. However, the job we have created for ourselves is not easy. For example, in one study it was reported that United States students desired high initial wages, and Taiwanese students desired creative and challenging jobs (Wolansky & Kang, 1991). In many ways our students want the rewards of excellence without expending the effort necessary to produce superior performance.

Within agricultural education, there has been almost no success in reaching a population of students that is representative of the population at large. During the 1988-89 year in agricultural colleges, only 2.3% of the undergraduate degrees and 1.5% of the graduate degrees were awarded to African-Americans. About 1.6% of the degrees in agriculture at all levels were awarded to Hispanic-Americans. Only 15 African-Americans and 20 Hispanic-Americans obtained a doctoral degree in an agricultural discipline during that year. In contrast, 707 White-Americans and 442 foreign students obtained a doctoral degree. Our country is undergoing rapid demographic change, but we continue to be intent on serving a shrinking portion of the population. Our wine has become vinegar.

The Opportunity

Shakespeare in Julius Caesar said in 1600 (p. 238 in Tripp, 1970), "O that a man might know the end of this day's business ere it come!"

It is easy to be critical of the present. It is easy to indicate that we should be doing something that we are not doing. However, it is essential that criticism be expressed in order to challenge us to do the work necessary to serve the needs of clientele who need instruction in agriculture. In one of the most ancient books of the Bible, Job (Chapter 32,verse 19) illustrates his feelings using wineskins as an analogy. He says, "Inside I am like bottled-up (or unvented) wine, like new wineskins ready to burst." In this illustration, Job could remain quiet no longer, he wanted to speak, to express his innermost feelings.

I can relate to Job. As I consider the future of agricultural education, I want to speak, to express my innermost feelings. The old is no longer sufficient. The old will no longer serve the purpose. Our wineskins have been torn, mended and have become torn again. Our wine has fermented too long and become vinegar.

We must acknowledge the value of the past. It is important. We must not forget from whence we have come. We must bring forward from our past the values, the philosophy, and the human relationships that have served us so well. However, we must also consider the age in which we are now living.

From the Present to the Future

Whatever happened to spare time? It wasn't too long ago that futurists were predicting an abundance of leisure time. How to make effective use of our leisure was thought to be a major problem that we should plan for. Instead we are in an age of hyper-living. In such a climate, relationships suffer. Relationships require unstructured time to develop and continue. There is nostalgia for simple relationships. Instead of worrying about leisure time, people are seeking the off-ramps from the fast lane.

Over 97% of the information which is now available was prepared for use in this generation (Zach, 1992). With so much information, the trivial often gets in the way of the vital. There is more information in one issue of the New York Times than one would have had available for reading in a lifetime in the 17th century. We will have, through the use of the computer, universal access to information. We must as communicators, convince the receiver of the information of its relevance, or the information will not be used. From information comes knowledge and from knowledge comes wisdom. It is wisdom that we must have to survive. We must help our students to become wise as they use information and develop knowledge. We all need the ability to make good choices from an abundance of choices.

People desire a renaissance; an age of discovery, wonder, and advancement. However, people are currently questioning whether the progress they perceive is real. There seems to be movement from one set of problems to a new set of problems. It is within this context that an agricultural education program must be designed that will serve an expanded client base.

The New Wine

Confucius said "If a man keeps cherishing his old knowledge, so as continually to be acquiring new, he may be a teacher of others" (Analects, 6th c. B.C., tr. James Legge, in Tripp, 1970, p. 629). Even though we cherish the old, it is time to acquire the new. The grapevines are laden with grapes. It is the time for the making of new wine.

Who are the students agricultural education should be serving in the next century? We continually hear dissatisfaction with the achievement of students in the schools. This dissatisfaction has led to the adoption of national goals for education. Where does agricultural education fit in with the national education goals adopted by the President and governors? What students will we have the opportunity to reach? The goals state that by the year 2000:

1. All American children will start school ready to learn
2. At least 90% of our students will graduate from high school
3. Our students will demonstrate competency in challenging subject matter and will learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment
4. American students will be first in the world in science and mathematics achievement
5. Every adult will be literate and have the knowledge and skills necessary to compete in a world economy and exercise the rights and responsibilities of citizenship
6. Every school will be safe and drug-free and offer a disciplined environment conducive to learning. (Alexander, 1992).

These goals will be difficult to reach. The United States society has changed and is still changing (Zach, 1992). For example, Muslims now outnumber Episcopalians; it is projected that women born after 1960 will have more husbands than children; and there will soon be more elders than baby boomers. The age of 65 was set as the retirement age when only 2% of the population lived that long. Now senior citizens are a major force in our society.

Workers enter the workforce in America primarily at the lower two skill levels. Most of the high-paying jobs, however, are at the upper three skill levels. This will continue. Workers at the lower skill levels compete globally because there is a worldwide glut of potential workers with similar qualifications.

Those who are able to retrieve and use information effectively will be at the center of power in any discipline. About 80% of most jobs can be automated. However, it is what must be known and decisions that must be made that cannot be effectively automated that will enable a worker to succeed.

Reforming education is easy compared to reforming society. We are overwhelmed when we see the problems of drugs, alcohol, rape, assault, etc. in our American communities. Many idealists of my generation thought that the passage of the Vocational Education Act of 1963 would solve many of these problems as youth and adults became educated for work. We were wrong. Education alone is not the answer. Educators must work within the context of society. We must give people a vision of who they can become.

Our early legislation challenged us to serve farm boys because this group was one that was in need of special help. The number of farm boys is now so small that if this was the only group we would serve, we would now be out of business. We must serve the new wine. Who are the ones in this present age that we can effectively serve? Who will be the ones that we can serve effectively in the year 2020?

It might be instructive for us to review how our country is changing demographically. The number of Black Americans increased by 13% between 1980 and 1990; the number of Hispanic Americans increased by 53%; and the number of Asian Americans increased by 108%. By the year 2010 the largest ethic minority will be the 41 million Hispanic Americans; the second largest will be the 37.5 million Black Americans; Asian Americans will be third with 17 million people. However, projecting the Asian American growth rate to the year 2040 suggests that by then there will be more Asian Americans than the current number of Black Americans. These three minority groups comprised 24% of the U.S. population in 1990. Assuming the White American population remains stable, these three minority groups will comprise 34% of the United States population in the year 2010. (American Demographics, 14(10, 11 & 12), Oct., Nov. & Dec. 1992)

It is obvious to me that if agriculture is to survive as a discipline we must serve the multi-ethnic society that our country is becoming. We can no longer just reach out to those we have traditionally served. Osborne (1993) reported that the percentage of minorities remains extremely low in agricultural education programs. He indicated that a higher percentage of minority enrollment must be brought into the profession, especially in leadership roles, if agricultural education is to reach a representative portion of American society.

> The Morrill Act of 1862 (also known as the Land Grant Act) was legislation passed by Congress during the nation's must serious social crisis. The legislation became the nation's most significant educational reform; it created an entirely new system of public colleges and universities. Such an action was a courageous act of faith in a country whose resources had been severely drained by war, whose unity was threatened by 18 states having already seceded from the union and in a country which already had an abundance of public colleges and universities. The legislation was thought to be warranted by the severity of the social crisis and by the determination of Congress to create new types of institutions intended to be an escape from elitism, institutions designed to serve the previously unserved--the "sons and daughters of farmers and

> mechanics". This was soft legal language for what, in those years, would have been better understood had they been called schools for the working classes or the poor.... It [the Act] said almost nothing about what to teach, how to teach or where to teach. It had a singular focus, namely, on who to teach. (Swanson, 1991, p.4)

Who to teach may be the most important decision we make in agricultural education as we plan for the next century.

Rural residents want the same thing as urban residents. Information technology is beginning to make things accessible to them that have previously been unaccessible (American Demographics, 14(8), August 1992). There are at least two groups in society that need special educational assistance. The first are students and potential students in the cities. The second group in need of special educational assistance is located in isolated rural communities. In these communities, the opportunities available to students may be restricted due to lower levels of educational financing and the lack of a critical mass of students in some areas of study.

Because of the isolation of the cities from rural America, city students seldom learn much about agriculture from their day-to-day experiences. I believe that all students need to learn about agriculture and have the opportunity to pursue careers in agriculture. Therefore we must expand our reach to serve students of every race and in every location. The new wine may need to have the color of the rainbow.

The New Wineskins

The psychologist Schopenhauer reported in 1851 that "Every man takes the limits of his own field of vision for the limits of the world" (Further Psychological Observations, Parerga and Paralipomena, tr. T. Bailey Saunders, in Tripp, p. 466). It is time to expand our vision. New wine requires new wineskins. Schools of the future (Toch, 1993) are expected to narrow the curriculum in order to improve student achievement in specific academic areas. Performance testing of students will become the norm. The school year may be extended so students can spend more time on task learning essential material.

We cannot expect our same old structures and programs to be accepted in a changing educational environment; we also cannot expect to serve a multi-ethnic society with the same old structures and programs. The FFA organization and the SAE program as now structured may not be appropriate for the new wine. The design of what is built must meet the needs of the marketplace. Good instruction will not overcome design flaws in the structure of the program that is used to provide the instruction.

Agricultural education can and should function as a single interactive system as long as if relies on a single source of revenue, the long suffering taxpayer (Swanson, 1991, p.2). By this I mean that a great deal of efficiency and effectiveness could be gained by improving the cooperation and coordination between agricultural education in the public schools and the Cooperative Extension Service. Our purpose is not to preserve jobs, but to meet the needs of clientele.

With the rapid changes in society specific skills may not be as important as the more general abilities. The most important skills needed for the future will be abilities necessary to seek wisdom, continually learn, adapt to change, solve problems, and communicate. Johnson and Evans (1991) report that strong academic skills are essential for future workers and that the greatest instructional need is to enhance students' thinking skills. This is essential as one considers that strategic planners expect that agriculture in the year 2000 will be scientifically advanced, consumer driven, environmentally accountable, international in scope, and dynamically managed (Agricultural Strategic Planning Task Force: Phase I Report, working paper, Ohio, n.d.). Agriculture should become the vehicle by which important generalizable skills are developed.

With the computer, location is not as important as access. An important part of any educational program in agriculture should be the use of the computer to access information in order to gain knowledge. Students and teachers may not even need to be physically present in schools for teaching and learning to occur. We should remember, however, that computers are only tools, they are not solutions to enduring problems in education. Industry has employed the "just in time" concept to reduce inventories and increase efficiency. Agricultural educators may want to consider "just in time" learning as a concept that would improve educational efficiency. The information would be available on computer for use at the teachable moment.

It is not my role today to report a specific design for agricultural education programs that will meet the need of the clientele we need to reach. I have said little about program design and I have said little about the nature of the curriculum. However, I do want to forward some ideas about how program design and the curriculum might be determined. In the early years, non-agricultural educators were involved in designing programs and delivering instruction. Perhaps it is time to involve them again. Our National Council on Agricultural Education is built upon a good concept. It involves business and industry with the profession in providing leadership and advice about future programs. However, it has failed in designing programs that will reach the multi-ethnic population who must be involved in agricultural education in the future. The National Council must become a vehicle for bringing agricultural education to new clientele. In order to do this we must have programs that have been cooperatively designed by advisory groups consisting of representatives of the groups we hope to reach and the profession which must deliver the programs.

Any program of agriculture in the future must be built upon future needs. These will include, but not be limited to the global nature of agriculture and agricultural education; problem solving using problems from real or simulated student experiences in agricultural science, agricultural marketing, and agricultural work settings; and a continuation of the excellent tradition of leadership and personal development.

These ideas about new wineskins (new programs and structures) now might seem as disorganized and non-functional as a pile of rocks. However, "a rock pile ceases to be a rock pile the moment a single [person] contemplates it, bearing within him [or her] the image of a cathedral (SAINT-EXUPERY, Flight to Arras, 1942, 22, tr. Lewis Galantiere, in Tripp, p. 679). We need to see the vision of a cathedral as we view agricultural education. I am hopeful that the profession will begin to work on rockpiles of ideas such as these and develop programs and structures that will enable agricultural education to be all that it can be. It must be shown that the future value of an education in agriculture is worth the cost. It will be if appropriate new wineskins are developed and used to serve the new wine.

The Challenge

Lyndon B. Johnson (address to the nation, Nov. 28, 1963, p. 23 in Tripp, 1970) said that "Yesterday is not ours to recover, but tomorrow is ours to win or to lose." Some believe that the future is created or invented, others believe that alternative scenarios are invented and the best alternative chosen, and still others believe that forces currently shaping our destiny continue to influence the future. All of these beliefs have some truth. However, the first and most important imperative for the future of agricultural education is to again focus on people (Swanson, 1991).

A lesson of history is that people must love one another if society is to survive. We have more ability to destroy than to bring unity. It is hope, faith, trust, commitment, and love that will carry us into the future and provide us with a chance to survive. We must love all the American people enough to insure that they have the opportunity to learn about agriculture. This will only happen if we become as dedicated as the pioneers who preceded us in the days of the Morrill and Smith-Hughes legislative acts.

There is a Chinese proverb that says that "Talk does not cook rice" (Tripp, 1970, p 608). All we have done today is talk. An English proverb carries a similar message, "Solomon made a book of proverbs, but a book of proverbs never made a Solomon" (Tripp, 1970, p. 392). The hard work is ahead of us. There is a Malay proverb that says "the turtle lays hundreds of eggs, quietly; but when the hen lays an egg, the whole village is informed" (Winstedt & Kwang, p. 57). The opinion leaders of our profession must resolve to "cook rice" and "lay hundreds of eggs quietly." The future of agricultural education will be determined by the quality and quantity of the effort expended to further develop the program. It is now necessary to get on with the task at hand.

The Holy Bible admonishes us to "run with perseverance the race marked out for us" (Hebrews 12:1b). It is time to design new wineskins for new wine. The future is ahead of us. The future is that period of time in which our affairs prosper, our friends are true and our happiness is assured (Ambrose Bierce, The Devil's Dictionary, 1911, p. 23, in Tripp, 1970). Welcome to the future!

Reference List

Alexander, L. (1992, October). World class standards for American education. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Agricultural strategic planning task force: Phase I report, working paper, Ohio, n.d. American Demographics, 14, 1992

Davis, J. D. & Gehman, H. S. (1944). The westminster dictionary of the Bible. Philadelphia: The Westminster Press.

Edelhart, M. & Tinen, J. (1983). America the quotable. New York: Facts On File Publications.

Johnson, S. D. & Evans, J. A. (1991, November). Preparing the future workforce: Instructional status of Illinois community college advanced technology programs, Journal of Studies in Technical Careers, 51(4), 327-339.

Leske, G. (1992, December). Foundations for excellence in SAE: Moving beyond practice to learning, The Agricultural Education Magazine, 65(6), 3-4.

McCracken, J. D. (1983, Spring). A profession in need of academicians. The Journal of the American Association of Teacher Educators in Agriculture, 24(1), 2-12.

Newcomb, L. H. (1992). Transforming university programs of agricultural education. 1992 Distinguished Lecture, American Association for Agricultural Education, St. Louis.

Osborne, E. (1993, January). Going to extremes, The Agricultural Education Magazine, 65(7), 3-4.

Pfeiffer, C. F. (1966). The Biblical world: A dictionary of Biblical Archaeology. Grand Rapids, MI: Baker Book House.

Rebeck, G. (1992). Is voc ed a dead end?, Utne Reader September/October.

Roth, G. L. & Tesolowski, D. G. (1991, Fall). Looking to the future darkly: A book review from 2033, Journal of Industrial Teacher Education, 29(1), 7-24.

Rossetti, R. & others. (1991). A nationwide examination of middle school enrollment in agricultural education and membership in the national FFA organization, ED#340931.

Swanson, G. I. (1991, Fall). The future of agricultural education: A view from the bleachers, Journal of Agricultural Education, 32(3), 2-8.

Thompson chain reference Bible: New international version. (1983). Grand Rapids, MI: The Zondervan Corporation.

Toch, T. (1993, January 11). The perfect school. U. S. News & World Report, 114(1), 46-61.

Tripp, R. T. (1970). The international thesaurus of quotations. New York: Harper & Row.

Winstedt, S.R. & Kwang, T.C. (1981). Malay proverbs. Singapore: Graham Brash (Pte) Ltd.

Wolansky, W. D. & Kang, C. T. L. (1991). A comparison of curriculum and career choices of senior school students in Taiwan and the United States, ED#342892.

Zach, D. M. (1992, December). The future and education. Presentation at the American Vocational Association Convention, St. Louis.

SCHOLARSHIP IN AGRICULTURAL EDUCATION: ITS ESSENCE AND MOOD

J. Robert Warmbrod, Professor

Professor Warmbrod is a Tennessee native and earned the Bachelor of Science in Agriculture and the Master of Science in Education at the University of Tennessee Knoxville. He served as an instructor in Agricultural Education at that University, and taught vocational agriculture in Tennessee. After receiving the Doctor of Education from the University of Illinois, he served on the faulty in Vocational and Technical Education, and as a consultant with the Center for Research in Vocational Education at Ohio State University. He joined the faculty in the Department of Agricultural Education at Ohio State in 1968, and served as chair for eight years. Professor Warmbrod conducts research in the area of higher education in agriculture and teaches courses in data analysis. This lecture was presented February 26, 1993.

Introduction

Several years ago when I was a member of the College of Agriculture's Honors Committee, a faculty member from a biological science department in the College made the following comment to me as the Committee was making plans to review research proposals to select students who would be awarded honors scholarships: "It's unfortunate that students in your department are not eligible for these scholarships." When I inquired why students in Agricultural Education were ineligible, the response was, "there is no research in agricultural education." The comments were not made as a put down or spoken in a demeaning manner. The comments were an indication of one faculty member's perception of agricultural education as an area of study and research in higher education. Hopefully, that faculty member's perception and stereotypic view of agricultural education received at least a mild jolt when the review of research proposals revealed that, on average, proposals submitted by students in agricultural education were rated just as high as students from other departments and that honors scholarships actually were awarded to students in agricultural education.

I'll share a second anecdote. During the time I was Acting Vice President for Agricultural Administration and Dean of the College of Agriculture, I invited one of the College's most distinguished faculty members to lunch to seek advice and counsel about priorities for the College and how we could enhance further the quality of our research, extension, and teaching programs. During the course of the conversation, the faculty member raised a question, which I elected not to answer since I had more than a casual interest in the faculty member's response. The question was: "Are there any departments in the College that are recognized as being within the five or ten most outstanding departments in the country?" I was disappointed, to say the least, when the faculty member's response was "probably not," but after brief reflection named one department, not agricultural education, as possibly being in the top-five-or-ten category.

Is it possible that a highly competent and respected faculty member in the College was unaware that OSU's Department of Agricultural Education is ranked most outstanding in the country? Or is another explanation the possibility that a faculty member, whose leadership and influence in the College is substantial, does not consider having an exceptional department of agricultural education as noteworthy when enumerating indicators of academic excellence? Twenty-seven months as Acting Vice President/Dean offered numerous opportunities for me to view agricultural education from an outsider's perspective and to learn about the knowledge and impressions of others regarding agricultural education as an academic enterprise within the College of Agriculture.

These two instances convey less than complimentary impressions about what agricultural education is, its substance, and its relevance as an academic endeavor in a College of Agriculture.

There is some evidence beyond the anecdotal indicating the perceptions others hold about the research, teaching, and service functions of agricultural education in the research university. Crunkilton, Miller, and Lee (1986) studied the image of agricultural education teacher training programs held by faculty members in the colleges of agriculture and education at The Ohio State University, Virginia Polytechnic Institute and State University, and Mississippi State University. They reported composite ratings that were barely within the positive image range on a scale of perceptions ranging from strongly disagree to strongly agree. Marietta Dlamini's (1986) masters thesis is a national study of the image of agricultural teacher education programs held by deans and associate deans of colleges of agriculture and deans of colleges of education. She reported that administrators' images of teaching and research in agricultural education are moderately favorable when perceptions are measured on a strongly disagree-strongly agree scale.

Shinn and Buriak (1988) used the Delphi Technique to elicit the perceptions of deans of colleges of agriculture, directors of agricultural experiment stations, and deans of colleges of education about the mission and obstacles for research in agricultural education. The responding deans and directors were employed in 31 major research universities with agricultural education programs. A majority of the deans and directors agreed that major obstacles for research in agricultural education include the following: Agricultural education is perceived to be "soft," does not have clearly defined objectives, lacks focus and rigor, is not programmatic, is staffed by persons with weak training in research methodology who cannot identify important researchable problems, and is plagued by the lack of definition of what agricultural education is.

I suspect the foregoing makes clear that the major focus of this presentation is with the general question of what agricultural education is. More specifically, the presentation deals with agricultural education as a subject, an area of academic endeavor, for research, teaching, extension, and public service in a major research university. To define the context more specifically, the focus is agricultural education as an academic specialization in a college of agriculture. Scholarship in agricultural education is the principal concern. And, as I will propose presently, the crux of the scholarship issue is the content -- the substance -- of agricultural education as an academic specialization in the research university.

Elements of Scholarship

What is scholarship? What are the essential elements -- the basic dimensions -- of scholarship? The first and foremost dimension of scholarship is that scholars deal with important and significant topics, ideas, and concerns. That is, the intellectual substance -- the content -- with which scholars deal is important, significant, and critical to the discipline or area of specialization. Scholars do not deal with trivia or unimportant matters; scholars are not satisfied with conventional wisdom.

What constitutes important and significant intellectual content in any particular discipline or specialized area is a judgmental call best made by those who have expertise within the discipline or specialized area of endeavor. Since what constitutes appropriate intellectual content is judgmental, it is not uncommon or unexpected that disagreements occur whether the study, debate, or research on a particular topic, problem, or issue is sufficiently important and significant to be labeled as scholarly endeavor. Disagreements about what constitutes scholarly activity arise among scholars within academic specializations. Disagreement is almost certain when scholars in one area of specialization attempt to judge what constitutes appropriate intellectual content in an area of specialization in which they have neither substantial knowledge nor an experiential base.

A second set of factors defining scholarship is derived from the definitions of the words "scholar," "scholarly," and "scholarship." Webster's New World Dictionary includes the following phrases to define these words: "specialist in a particular branch of learning;" "having or showing much knowledge, accuracy and critical ability," and "the systematized knowledge of a learned person exhibiting accuracy, critical ability, and thoroughness." Scholars, then, possess and exhibit systematic knowledge in their areas of specialization with that knowledge characterized by accuracy and thoroughness. Scholars not only know,

they understand. Scholars integrate and synthesize information; scholars see and make explicit the interconnections among facts, principles and concepts. Scholars are critical, analytical, and persist in searching not only for additional facts and information but in ferreting out explanations that lead to understanding as well as knowing. Perhaps this dimension of scholarship can be summarized by saying that scholarship is akin to, if not synonymous with, excellence.

A third dimension of scholarship is that one's designation as a scholar -- that is, the recognition of one's scholarship -- is bestowed by one's peers. Peer judgment is a vital element in the achievement and recognition of scholarship. Scholarship is not achieved by self-proclamation.

Miller (1991), the 1990 Distinguished Lecturer of the American Association for Agricultural Education, listed scholarship and substance in agricultural education as major concerns the profession should address.

Defining and Demonstrating Scholarship

The definitive work on defining and demonstrating scholarship is a special report of the Carnegie Foundation for the Advancement of Teaching. The report, written by Ernest L. Boyer (1990), is titled Scholarship Reconsidered: Priorities of the Professoriate. Boyer maintains that the work of the professoriate can be thought of as having four separate but overlapping dimensions: the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching.

Scholarship of discovery is research and recognizes the centrality of disciplined, systematic investigation as a major part of the mission of higher education.

The scholarship of integration emphasizes giving meaning to isolated facts, making connections across disciplines, drawing data together, and interpreting data. Closely related to the scholarship of discovery, scholarship of integration asks the question: What do the findings mean? Critical analysis, interpretation, synthesis, and understanding are hallmarks of the scholarship of integration.

The scholarship of application engages the scholar in asking how knowledge can be "responsibly applied to consequential problems." Boyer draws a sharp distinction between what he calls the scholar's citizenship activities -- serving on committees, advising student clubs, and performing department chores -- and activities that demonstrate the scholarship of application. Boyer argues that to be considered scholarship, service activities must be tied directly to one's specialized field of knowledge and relate directly to the faculty member's professional work.

The scholarship of teaching emphasizes the acquisition of knowledge and understanding through teaching. Teaching as a scholarly endeavor requires professors who are well informed and intellectually engaged. An underlying premise of the scholarship of teaching is that teaching not only involves the transmitting of knowledge but also the transformation and extension of knowledge. The scholarship of teaching embodies the notion that an effective way to learn is to teach.

An underlying premise of this presentation is that faculty members demonstrate scholarship through research, through teaching, and through service activities involving the application of specialized knowledge in solving pressing, significant problems and in policy and program development activities. Faculty members demonstrate scholarship through teaching both by instructing undergraduates and graduates pursuing degrees and by instructing youth and adults participating in extension programs. I propose that this premise holds for all faculty in the College; it does not apply uniquely to faculty in agricultural education.

What Is Agricultural Education?

What is agricultural education as a field of specialization for teaching, research, and public service in the research university? The central concern is: What constitutes the content -- the intellectual substance -- of agricultural education? About what subject matter do faculty members in agricultural education teach, conduct research, and advise and consult with others? The heart of the challenge to define or describe scholarship in agricultural education is the substance -- the content, the subject matter -- with which agricultural education deals.

When attempting to describe the content of agricultural education as a field of specialization in higher education, it is important to distinguish agricultural education as the name of a program of instruction in the public schools from agricultural education as the name of an academic program in the university. I suggest that the image problem haunting agricultural education in universities is, at least to some extent, a function of a lack of differentiation between agricultural education in the public schools and agricultural education as a substantive area for instruction and research in the university. We in agricultural education are partly, perhaps principally, responsible for that state of affairs because of our preoccupation with instruction in agriculture in the public secondary schools. Professors of agricultural education should not be too surprised, or upset, when their colleagues in other academic units in the College of Agriculture speak and act as if agricultural education's primary concern is teaching agriculture in the public schools and the preparation and continuing education of those who teach in the public schools.

We must clearly differentiate between instruction in and about agriculture in public elementary, middle, and secondary schools, in postsecondary schools -- including higher education -- and in nondegree extension programs from agricultural education in higher education. In the former, the substance -- the content -- is the science and technology of agriculture. In the latter, the content -- the substance -- is "agricultural education" -- the knowledge base that defines scholarship in agricultural education.

An explication of the content of agricultural education as a specialization for instruction and research in the university must be accompanied by a change in orientation among faculty in agricultural education that expands our vision of the settings, the situations, and the clientele to which the specialized knowledge of agricultural education applies. We should not abandon or slight instruction in and about agriculture in the public schools. But it is imperative that we expand our horizon to include instruction, research, and service to other settings, situations, and clientele where the specialized knowledge base in agricultural education applies just as appropriately as it does to agricultural instruction in the public schools.

I propose three environments, in addition to the public schools, to which the knowledge base in agricultural education is particularly germane. The first is the agencies in business, industry, government, and organizations concerned chiefly with agriculture and agribusiness whose responsibilities deal primarily with communication and public information, training, or the selection, development, and evaluation of personnel. A second setting to which agricultural education content is apropos is extension education, a position presented by Barrick (1988) in his Professorial Inaugural Lecture some four years ago. And the third additional environment to which the content of agricultural education is undeniably pertinent is higher education in agriculture -- teaching and learning in colleges of agriculture. As the 1992 Distinguished Lecturer of the American Association for Agricultural Education, Associate Dean Newcomb (1992) proposed "providing instruction and research that deals with topics related to higher education in agriculture" as an action required for transforming university programs of agricultural education. My position is that agricultural education is not likely to be recognized by our colleagues in the university as bona fide, substantive content for instruction and research in colleges of agriculture unless we demonstrate that systematic, disciplined inquiry and study of teaching and learning are advantageous in planning for, presenting, and evaluating instruction in the food, agricultural, and environmental sciences.

These propositions indicate what the content of agricultural education is not. The following phrases do not describe the substance -- the content -- of agricultural education: public school education; human resource development and public information in agricultural industry, business, and organizations; extension education; adult and continuing education; and postsecondary and higher education. These are settings or environments, to which the content of agricultural education critically applies. The question is: What is the content of agricultural education?

The Content of Agricultural Education

The core, the intellectual focus, of the content with which agricultural education deals is teaching and learning. Let's begin with the learning side of this pair. Knowledge and understanding of learning comes from study and research having to do with the psychology of learning, theories of learning, cognition, higher order cognitive skills, problem-solving, reflective and critical thinking, human development, and other topics in educational psychology and social psychology. Similar to other academic units in the College that are grounded in the biological, physical, or social sciences, agricultural education anchors its content base in the theories and research pertaining to human learning and applies and adapts, through instruction and research, this basic knowledge to teaching agriculture in the various environments that have been enumerated previously. Agricultural education can be described as an applied academic endeavor in the same sense as other academic units in the College. Its roots are more closely tied to the behavioral sciences than other academic units in the College. Agricultural education shares with agricultural economics and rural sociology a tie to the social sciences.

On the teaching side of the teaching-learning duo, the content of agricultural education consists of systematic study of teaching and the development, implementation and critical analysis of strategies for providing instruction. It is a misconception to treat teaching as a skill only (Shulman, 1986; 1987). Teaching becomes a substantive topic when it is taken as a subject for analysis, disciplined inquiry, and critical discussion (Elmore, 1989). K. Patricia Cross (1990), distinguished Professor of Higher Education at the University of California, Berkeley, proposes that "teaching is emerging as one of the most profoundly challenging aspects" of a faculty member's job. Critical analysis and systematic inquiry of teaching in colleges of agriculture will, in my opinion, do much to remedy the perception that agricultural education is a substantive lightweight as a specialized area for instruction and research in higher education.

Evolving from the critical analysis and systematic study of teaching -- pedagogy -- are other substantive topics that describe the content of agricultural education. Prior to the act of teaching, there is a series of activities and issues concerning what to teach, how to organize subject matter, and the connections between instructional strategy and the subject matter to be taught. Call this whatever you like -- needs assessment, curriculum development, lesson planning, or program development -- but these activities are part and parcel of the instructional process and are viable substantive targets for systematic study, critical analysis, and research. I believe if you talk with the members of the Special Committee for Undergraduate Curriculum Review in Agriculture, or if you read the reports of that Committee, it will be abundantly clear that the study, debate, and analysis of curriculum reform with which the Committee dealt are issues that are important, significant, and substantive in the higher education bailiwick. The same can be said for educational planning in the public schools, extension education, and education, training, and public information programs in business, industry, and agricultural organizations.

Another dimension of the content of agricultural education that has roots in the critical analysis and systematic study of teaching is the assessment of learning and the evaluation of the effectiveness of educational programs. Here the subject matter includes a gamut of topics such as constructing tests and other measurement devices, psychometric characteristics of tests, program evaluation from both qualitative and quantitative perspectives, cost-effectiveness, and a number of related concerns. None of these topics is simple. Each requires a substantial knowledge base and understanding if valid and reliable assessments of the outcomes of instruction are to be made.

Some will argue that teaching, planning for teaching, and the assessment of teaching are processes, hence an attempt is being made to legitimize process as content. That argument is sometimes accompanied by the contention that teaching and its companions planning and assessment are "common sense." I argue that teaching, planning for teaching, and the assessment of teaching and learning are not solely or primarily "cookbook" concerns. Process is a part; but equally important is the underlying rationale so that one understands why certain strategies are appropriate as well as knowing how to implement effectively the strategies and techniques. To describe the intellectual activity of teaching as "common sense" comes dangerously close to endorsing conventional wisdom.

In addition to the core content for agricultural education, I propose three additional candidates for the cadre of topics that constitute the substance of agricultural education. First, there is the philosophy of education. For those who doubt the substantive scope or rigor of this element, I recommend perusal of books such as John Dewey's Democracy and Education, Education and Experience, or How We Think. Those providing instruction in and about agriculture from public schools to higher education routinely refer to the land grant philosophy, extension education philosophy, or vocational education philosophy. Closely tied to these topics is the history of education in agriculture. We frequently speak or hear about the Morrill Acts, the Hatch Act, the Smith-Lever Act, or the Smith-Hughes Act. Many whose primary interest is vocational education in agriculture in the secondary schools have an alarmingly narrow understanding of the origin and development of instruction in agriculture in the public schools beyond the notion that it all started in 1917 with the passage of the Smith-Hughes Act. Surely, it is appropriate for a research university's scholars in the history and philosophy of education in and about agriculture to be members of its faculty of agricultural education.

A second content area, closely aligned with the core of teaching and learning, is the preparation and continuing professional development of personnel who teach, supervise teachers, and evaluate both instruction and personnel. Traditionally in faculties of agricultural education this has taken the form of teacher education, primarily for secondary school teachers, and in some cases preparatory programs for cooperative extension personnel. As a substantive area for instruction, critical analysis and research, its breadth needs to be expanded to encompass appropriate involvement of the preparation of teachers at all levels of public education, extension education, graduate teaching associates, and potential and current faculty in the food, agricultural, and environmental sciences. An essential dimension of this area of specialized knowledge is the close connection between teaching and the subject matter that is being taught.

A third content area, closely aligned with the core of teaching and learning, includes topics such as organization, administration, finance, and policy development and analysis pertaining to instruction in agriculture. Here the knowledge base draws heavily from the fields of management, administration, organizational behavior, public administration, and finance. These topics are vitally important in the total scheme of instruction in agriculture. Each is a substantive area that warrants systematic study and critical analysis. These areas of knowledge are a part of the knowledge base that appropriately is included within the domain of faculty in agricultural education.

The last element of the substantive domain of agricultural education is not unique to agricultural education; however, it is as apropos to agricultural education as it is to all other academic units in the College. I refer to data analysis and interpretation and research methodology. A review of the 1992-93 OSU Course Offerings Bulletin reveals that nine of the ten academic departments in the College plus the School of Natural Resources offer one or more courses or seminars that deal with research methodology, data analysis and interpretation, or both. These courses and seminars are in addition to the undergraduate data analysis courses offered as General Education Curriculum courses and individual study courses that pertain to the conduct and analysis of research. Research methodology and data analysis constitute a part of the substance -- the content -- of agricultural education just as it does in other areas of academic endeavor.

The Mood of Scholarship

To this point my comments have been primarily about the essence of scholarship, with particular reference to agricultural education as an area of academic endeavor in a college of agriculture in the research university. I maintain that scholarship demands, in addition to expertness, thoroughness, accuracy, and critical ability, a congruent set of attitudes, values, or points of view that guide the scholar's conduct. I call this the mood of scholarship.

Scholars are aware of the bounds of their expertness, their knowledge, and their understanding. Scholars in one area of specialization respect and honor the expertness of scholars in areas of specialization other than their own. Scholars abhor stereotypic judgments of the importance, rigor, and substance of academic specializations; scholars are skeptical of a pecking-order of academic specializations. Scholars are careful not to define scholarship and scholarly activity exclusively in terms of one's own area of specialization. Scholars are tenacious in seeking thoroughness and accuracy of knowledge; in asking questions; in critically analyzing facts as well as positions; and in demanding soundness of reasoning, and persuasiveness of arguments. Scholars are tough, but fair, questioners who use questions to elicit information, to establish the validity of facts and sources of information, to test the completeness and rigor of arguments, and to judge the soundness of both the reasoning process and the conclusions reached. Scholars are careful about using questions as intellectual harassment, a political strategy, or a means for protecting turf. Scholars know that discussion, questioning, and disagreement are expected and when properly used contribute to understanding and sound decisions. Scholars respect the opinions of those with whom they disagree.

Scholars in agricultural education must argue the case for and demonstrate that the content of agricultural education is an important and significant academic endeavor for instruction and research in the research university. Scholars in agricultural education must continually re-examine the content of agricultural education, its instructional strategies, and its research. Faculty in agricultural education must heed McCracken's (1983) call for academicians that he presented as the American Association for Agricultural Education's Distinguished Lecturer ten years ago. Scholars in agricultural education must respect and honor the scholarship of their colleagues in other academic specializations in the College. Scholars in agricultural education are due the same from scholars in other academic specializations.

Summary

I conclude with these comments.

The essence of scholarship in agricultural education, and for any other area of academic specialization, is, first, that important and significant ideas are the substance of instruction and disciplined inquiry. Additional hallmarks of scholarship are thoroughness and accuracy of knowledge, understanding as well as knowing, and critical and analytical analysis. The mood of scholars in agricultural education, and for scholars in other academic specializations, is characterized by openness, fairness, questioning, and respect for the scholarship and judgment of those in academic specializations different from one's own.

Teaching and learning is the core of the intellectual content of agricultural education as an academic endeavor in a college of agriculture in the research university. Additional substantive content areas emanating from the teaching-learning core include

- planning for instruction;
- the assessment of instruction and learning;
- the preparation and continuing professional development of persons whose expertise is planning for, providing, and assessing instruction;
- the organization, administration, finance, and policy formulation and analysis;
- the history and philosophy of education in agriculture; and

-- research methodology and data analysis and interpretation.

Disciplined inquiry and critical analysis pertaining to these topics authenticate their inclusion as content of agricultural education.

The content of agricultural education is the basis for teaching, research, and service in several environments where instruction about food, agricultural, and environmental sciences occurs. These settings or environments include the public schools; agencies in business, industry, and organizations chiefly concerned with communication, public information, or personnel development; extension education; and postsecondary education, including research universities.

In the College of Agriculture at The Ohio State University, its scholars in teaching and learning with specific reference to the food, agricultural, and environmental sciences ought to be located in its faculty of agricultural education. That scholarship ought to be recognized and consulted by practitioners of teaching in all units of the agricultural administration enterprise whose mission includes teaching. Scholarship in agricultural education, particularly the research dimension of that scholarship, must demonstrate its ability to influence the practice of teaching and the formation of policy about instruction as a primary mission of the research university.

References

Barrick, R. K. (1988). The discipline called agricultural education (Professorial Inaugural Lecture Series). Department of Agricultural Education, The Ohio State University. Columbus, OH.

Boyer, E. L. (1990). Scholarship reconsidered: Priorities of the professoriate. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Cross, K. P. (1990). Teachers as scholars. American Association of Higher Education Bulletin. 43(4), 3-5.

Crunkilton, J. R., Miller, L. E. & Lee, J. S. (1986, March). Image of agricultural education teacher training programs in colleges of education and agriculture at three major universities. Paper presented at the Southern Agricultural Education Research Meeting, Little Rock, AR.

Dlamini, M. P. (1986). College administrators' image of the agricultural teacher education program: A national study. Unpublished master's thesis, The Ohio State University, Columbus, OH.

Elmore, R. F. (1989). How we teach is what we teach. American Association of Higher Education Bulletin. 41(8), 11-14.

McCracken, J. D. (1983). A profession in need of academicians. Journal of the American Association of Teacher Educators in Agriculture. 24(1), 2-12.

Miller, L. E. (1991). Checking the pulse of the profession. Journal of Agricultural Education. 32(1), 2-6.

Newcomb, L. H. (1992). Transforming university programs of agricultural education. (Distinguished Lecture, American Association for Agricultural Education). St. Louis, MO.

Shinn, G. C. & Buriak, P. (1988). Mission and obstacles for research in agricultural education: A national delphi technique involving external expert advisors. Proceedings of the Fifteenth Annual National Agricultural Education Research Meeting. (pp. 143-148). St. Louis, MO.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher. 15(2), 4-14.

Shulman, L. S. (1987). Learning to teach. American Association for Higher Education Bulletin. 40, 5-9.

INTERDISCIPLINARY, SOFT, APPLIED AND OTHER ANOMALIES IN RESEARCH: THE FUTURE

Larry E. Miller, Professor

Professor Miller, a native of Missouri, received the Bachelor of Science from the University of Missouri and the Master of Science from Northwest Missouri State University. He taught vocational agriculture in Missouri and was an instructor at Northwest Missouri State. He also served as an instructor at Purdue University, where he earned the Doctor of Philosophy. Following appointments on the faculty at Virginia Polytechnic Institute and State University and the University of Missouri-Columbia, he joined the faculty in the Department of Agricultural Education at The Ohio State University in 1979. Professor Miller teaches a course in research methods and conducts research in adult education. This lecture was presented May 7, 1993.

Introduction

A legend exists in the Middle-East about a man by the name of Nasrudin who was observed by a friend searching frantically in the roadway dust outside his home.

"What have you lost, Nasrudin," asked the friend?

"My key," said Nasrudin.

So the friend helped look for the key on hands and knees. Finally, after no success, the friend asked "Where exactly did you drop it?"

"In my house," Nasrudin said.

"Then, why are you looking here, Nasrudin?"

"Because there is more light here than within my own house," replied Nasrudin.

This story forms a backdrop for what I would like to discuss related to research. I would like to get you to think with me today about the research that we are conducting. I will try to take a look at the philosophy of science to define the boundaries of my thesis and attempt to draw implications for research in agriculture, vocational education, and agricultural education.

The heart of my discussion will feature the concept of "knowing". 'Highlighted will be knowing more through research, but it absolutely could have implications for thinking related to teaching/learning about which we are all concerned. Ray (1987) stated that "research is not a process of proving something but a process of discovering and learning ..., ... we may see problem solving, thinking, learning, research and discovery as one and the same process." However, that is another topic for another occasion and perhaps another forum.

To extend my analogy, where and how are we looking for our key? Are we tending to look only in the dust of the well-lit roadway, or are we willing to search in other locations, with other means, to move down that road to "knowing". Here, I am using Krathwohl's (1985) term, because he discusses research as not necessarily always resulting in the ultimate "to know", but on the roadway to "knowing". That is, research moves us toward the solutions to problems, but does not always provide the absolute final answer to the whole research problem. Röling (1974) wrote that our research is not geared to make conclusions (generalizations) but as decisions, a formula for action. Warmbrod (1993) called for us to "understand and know".

The Problem

I also want, early on, to share one assumption with you as I talk to research in agriculture and education. I am going to assume that discipline-specific research programs are going to continue in the agricultural and behavioral sciences. However, much of what I want to discuss will not be related to discipline-specific research, but related to "subject matter research" or "problem solving" research (Miller, 1989). Bonner (1986) related how land grant universities undervalue subject matter and problem-solving research relative to discipline research. Enarson (1989) argued that the "research university" and the land grant mission may be incompatible. Likewise, I want to argue that, in the interests of the overall institutional research programs, universities must look to reducing discipline-specific research and expanding pragmatic inquiry. The agricultural education key will not be among the roadway dust of biotechnology and macroeconomics but in the house of the people. For our fields of agricultural education, extension, and communications; I believe that one difficulty which we constantly encounter is that others do not clearly understand or acknowledge our knowledge base and, thus, do not perceive clearly our lines of inquiry. Neither do we do a sufficiently adequate job of clearly communicating how our research ties closely with the problems of the "real world", how the research we do is related to theirs, or how that research would fit into the agenda of numerous domestic and international agencies, say of USDA, USDE, FAO, UNDP; UNESCO.

Our research tends to be toward "soft" on a soft-hard continuum, and toward applied on an applied-basic continuum. Note the position of vocational/education and education on Figure 1. Note from Figure 2 that educational research tends to be toward concrete on a concrete-abstract continuum and toward active on an active-reflective continuum.

Warmbrod (1993), quoting from Buriak and Shinn (1989), opened his address to the Southern Agricultural Education Meeting by stating:

Agricultural education research is "soft," does not have clearly defined objectives or hypothesis, lacks focus and rigor, is not programmatic, and is not sufficiently funded. It is conducted by persons with weak training in research methodology who (1) cannot identify important research problems, (2) do not value research endeavors, (3) conduct research for promotion and tenure rather than for its importance and utility, and (4) have a limited amount of time assigned for research.

Given these perspectives, let us think of the reactions that our colleagues in a college of agriculture would have to research in agricultural and/or vocational education. In Figure 2, you can see that most of our colleagues in agriculture would tend to be toward the abstract and reflective; and, in Figure 1, that they would tend to be applied and hard, with some in the hard and basic intersections. These colleagues have a definite mental image of what constitutes research, and we often do not fit their mold.

They perceive that they "know" research, after all they have been doing it much of their professional lives, they learned at the bench top with a mentor, and they are well-published discipline-specific researchers. When they examine our research in agricultural education, they see problems, questions, and methods which just do not fit with their knowledge base or practice of systematic inquiry.

If we could read their minds as they peruse our research, we would perhaps be able to summarize with comments such as "this stuff is too applied", "this stuff is too specific", "this is just descriptive", "this is trivial", "this is not theoretical, concrete, basic, or a part of a programmatic effort", or "this is just 'messing around' and calling it research". These might be the nicest of comments and many more could be much more derogatory and crudely provided.

In other areas of the academic community, we would not fare much better when those from the humanities or arts perused our work. This would also be true for those from the post-positivistic paradigms. They would view our work as not scholarly enough, not reflective, or not employing critical analysis.

Therefore, we tend to be in a dilemma. Obviously, from Figures 1 and 2, we are not alone. This dilemma causes us much frustration. All of us have experienced, or may experience, situations where "outsiders" on the committees of our graduate students may pose difficult situations for the students when the "outsiders" position themselves alo an extreme on any of the continua in the figures distanced from the student and our discipline. We also find difficulty in working with researchers in other areas when it comes time to jointly prepare a proposal for a research or development project.

As universities and other agencies move toward interdisciplinary inquiry and project teams are formed, the omission of agricultural vocational education from these groups will not be surprising because they do not understand what we do or how we can contribute. I have been frustrated, too many times to mention, because international or domestic projects have been submitted by my college or though interdisciplinary teams which had education/training or evaluation components and the proposers saw no reason to include agricultural education.

Foundations from Philosophy of Science

Let us consider these problems we encounter from the perspective of "knowing". Oliga (1988) summarized the basic elements of Habermas' Interest Constitution Theory (Table 1) and noted that the three different knowledge types implied different methodological approaches -- namely, empirical, hermeneutic and critical
methodologies.

Table 1. Habermas' Interest Constitution Theory

Knowledge-constitutive interest	Basis of human interest	Type of interaction	Underlying paradigm	Methodological Approach
Technical (control)	Labor (instrumental action)	Man -- Nature	Functionalist	Empiricism
Practical (understanding)	Communicative interaction	Man -- Man	Interpretative	Hermeneutics
Emancipatory (freedom)	Authority (power)	Man -- Self	Radical/Critical	Critique

(Habermas, 1972)

This theory helps explain much of our position on the hard-soft, basic-applied; and concrete-abstract, active-reflective continua respective to other disciplines. The technical wants to produce "laws", the interpretive to reach "consensus" and meaning, and the critical to achieve "emancipation" through reasoned choice. Van Manen (1977) noted that each of the three forms of inquiry is distinctive in terms of (a) its way of looking at people and society, (b) the form of knowledge it produces, (c) its logic in use, (d) its methodologies and techniques, (e) the use to which the knowledge can be put. Wardlow (1989) stated that most agricultural education research has been positivistic, but many of our problems are too complex for just one mode of inquiry. Copa (1984) similarly charged vocational education to broaden its consideration of paradigms.

Functionalists (Positivists)

The methodological approaches of the empiricists are followed to produce objective knowledge which is independent of the researcher, and replicable in other settings. The knowledge also has value freedom in that it is ethically neutral. The knowledge or "discoveries" produced add to the knowledge

base in a discipline or, as in the case of hard systems methods such as engineering, provide technology which produces greater output or more efficient systems of doing things. The philosophy underlying this epistemology is most often positivism. The position is "that science alone represents a genuine form of human knowledge, such that nonscience represent pseudoknowledge or even cognitive meaninglessness or nonsense" (Keat, 1981). Popper (1969), although a positivist himself, argued that while science could be distinguished from nonscience, that did not imply an equivalent distinction between sense and nonsense. The second doctrine of positivism posits that knowledge is the explanation and prediction of observable phenomena through the demonstration that such phenomena constitute instances of universal laws that remain invariate in all regions of space and time (Oliga, 1988). While scientific politics seeks to "scientize" ends, the doctrine of value freedom opposes this, seeking instead a sharp distinction between means and ends, fact and value, science and politics. Keat (1981) pointed out, however, that political issues or moral judgments cannot be justified solely by means of scientific knowledge.

Eisner (1992) explained that the positivistic position is that science:

> which separates value from fact, that embraces methodological monism, that rests on a foundationalist view of knowledge, that possesses a particular conception of meaning, that regards ethical claims as meaningless utterances, that believes science to be the sole source of knowledge, that seeks to explain "reality" through an appeal to universal laws, and that regards measurement as the quintessential means through which reality, whatever it may be, can be represented.

Interpretative (Practical)

The methodology of hermeneutics, or interpretative science, includes the "naturalistic", the "hermeneutics as method", and the "historical-hermeneutics. Oliga wrote that the naturalistic perspective includes the phenomenological symbolic interactionism which seeks to explain how social order, as a real phenomena, emerges from social action and interaction processes, from which shared meaning in turn emerges. Ethnomethodology seeks to explain how actors employ various cognitive resources to order and make sense of their everyday activities and make some activities accountable to others. Existentialism is concerned with the central lived qualities of individual human existence and seeks to understand the individual "life-world" from the point of view of those involved, using constructs and explanations which are intelligible in terms of common-sense interpretations of everyday life. The belief in hermeneutics is that social reality is distinctive in character and contain a component missing from natural phenomena; they require a mode of analysis different from that of mere explanation (1988). Lakes (1993) suggested that interpretative science would liberalize the vocational education discipline by presenting the field with sociocultural understandings of human relations (Lewis, 1990).

Jax (1984), in addressing vocational education, related that interpretive science was conducted to interpret and give meaning to a given situation and that to provide broad generalizations was not the intent. The researcher takes on the role of the people or group studied and attempts to understand the context of the situation within the framework of the participants. Van Manen (1975) stated the purpose was to understand the ways people subjectively experience life and the world, and Geertz (1973) called for "thick description" which was interpreted as a search for meaning and not laws. Might this not fit Warmbrod's (1993) description of "understanding" as it compares to "knowing"?

Radical/Critical (Emancipatory)

Critique, or critical hermeneutics, is an attempt to mediate the objectivity of historical processes with the motives of those acting within it, the aim being the freeing of emancipatory potential. The approach seeks to remove barriers to understanding that may be operative, without the individual or groups concerned being aware of them: a critique of ideology (Bleicher, 1980). The task is to render

individual and social processes transparent to the actors concerned so that they can pursue their further development with consciousness and will, rather than remaining the end product of a causal chain operative behind their backs (Oliga, 1988). Habermas (1972) noted that "tradition, as a context that includes work and domination, enables as well as restricts the parameters within which we define our needs and interact in order to satisfy them". Such research interest is thus driven by the desire to "emancipate". Lakes (1992) suggested that the critical theory approach would democratize the field of vocational education by affirming the contributions of social movements in advancing workplace justice and workforce equity. Freire (1987), referring to the purpose of extension in agriculture, stated that the clients are objects of persuasion which will render them more susceptible to propaganda, but this cannot happen if they have the alternative option of liberalization (emancipation), i.e., if they are critically aware of their situation, then they can act on it. He noted (the real work of extension educators) "their task is communication, not extension".

Coomer (1984) related that critical science is conducted to address normative and value questions, and she wrote specifically about vocational education. She noted that such research is conducted to reduce frustrations experienced by people as they attempt to deal with technical controls. Habermas (1973) provided a definition of "critical" as the potential people have for self-reflection and self-determination in a social structure where the "institutions (family, government, education) appear to acquire an invisible compulsion of their own and become a part of the individual's view of what is real, i.e., institutions merge with nature: "what is real", what exists, and not likely to change. New knowledge would address whether or not these institutions are appropriate and, because they are operationalized by people, can be studied and changed. Such research really asks whether or not these existing norms are absolute, i.e., contrasts the way things are with the way things could and should be. Vocational educators, remember our goal has always been to prepare people to achieve self-determination, self-realization and self-integration (Broudy, 1962).

Conflicts

With this backdrop from philosophy, I believe it is clearer as to why we have difficulties in communicating about our research and participating in the research of others. Our tradition and our learning related to research methods are couched in the empirical method. However, much of our interests for knowledge production or problem solving lies in practical understanding with our basis in communicative interaction or emancipation.

When the agricultural scientist is based in the functionalist (positivistic) paradigm and sees the study of nature and the production of value free knowledge as the ultimate end, how does a person from agricultural communications, education or extension explain the knowledge produced from man-man interactions. Or, for those concerned with emancipation, international development, or critical consciousness; how would one communicate such man-self interactions to an empiricist from the positivistic community.

Schmidt (1992) recognized that qualitative studies are valid for the field of vocational education and useful to expand on research in the discipline: "A wealth of information can be gathered through qualitative methods." Hillison (1990) advocates qualitative research as a way to nuance cultural factors that usually are controlled by the clinical trial, and noted that, "We frequently treat socioeconomic status as background noise when that variable could be the most important in the study. Lewis (1991) believed critical theory approaches to research reveal ideological distortions in the field. For instance, by stating that vocational education is burdened with the inherent dilemma of a capitalistic society, he illustrates the contradictions between economic efficiency and social equity -- assumptions about social reality which do not enter into the positivistic paradigm (Lakes, 1993). Lakes also notes that others have written that critical theory is valuable in constructing an emancipatory pedagogy on work and labor (Gregson, 1992; Rehm, 1989).

Positivistic vocational education research (Lakes, 1993) upholds rationalistic premises upon which historic industrial practices and labor-management relationships are conducted (Garrison, 1989; Wirth, 1983). Critical theories of feminism, Freirean pedagogy, and neo-Marxism, for instance, attempt to illuminate ideologically-frozen assumptions embedded in normative cultural practices that promote racism, classism, and sexism in work and labor (Lakes, 1993). The critical theory paradigm is openly ideological and advocacy-based research (Lather, 1991). Swanson (1991) observed that thinking in agricultural education tends to be for one way of doing things, which implies that it is time that we consider other ways of knowing -- looking for our future and key in other methodologies and paradigms. Others have noted similar concerns about vocational education (Lewis, 1990; Oakes, 1986; Matthews and Campbell, 1983; Copa and Smith, 1983; Pratzner, 1985; Ertel and Neveu, 1987).

Lather (1991), in describing post-positivistic inquiry, also adds a perspective which might prove helpful in clarifying these ideas.

Table 2. Positivistic Inquiry

Predict	Understand	Emancipate	Deconstruct
positivism	interpretative naturalistic constructivist phenomenological hermeneutic	critical neo-Marxist feminist praxis-oriented educative Freirean-participatory action research	poststructural postmodern post-paradigmatic diaspora

From this perspective, too, we can see that when we wish to understand what is occurring in the school or extension classes and then to communicate such knowledge to college of agriculture deans, directors of agricultural experiment stations, or university administrators responsible for research much difficulty will arise when they are knowledgeable of only the positivistic traditions and methods. "Discovery" is the driving force for them. Note how even USDA - CRIS reports want statements related to the number of patents applications made by the researcher.

If the research is conducted to better understand how to educate agriculturalists, wherein is the patent? Where is the value-free knowledge -- the laws -- the discoveries -- which emerge? If the agricultural communicators, operating in a world of positivists using quantitative methods, wish to explain their programmatic research programs to their agricultural or university colleagues, how do they proceed? Should they not be examining the man-man or man-self dimensions? Should the standards for research quality or promotion and tenure be determined from data-based, quantitative research publications? Schön (1983) stated that "in the United States more than any other country except Germany, the very heart of the university was given over to the scientific enterprise, to the ethos of the Technological Program and to Positivism."

In my AAAE Distinguished Lecture (Miller, 1989), I noted how a distinction between scholarship and research makes sense to me. I still have that belief, but believe, now, that I see how some of those dimensions of scholarship, about which I was then thinking, are operative within the interpretative, and critical science arenas. I can begin to understand more fully how, for example, some of the research in agricultural communications would need to be conceptualized and how programmatic lines of inquiry would and could emerge. Oh, I do not know how to employ all of these methods, yet, but I begin to see where we ought to be searching for our key.

I now see that much of the research which we should be doing is not problem solving, quantitative, or empirical. We have been criticized (Krebs, 1976) in the profession for not conducting more theoretical, programmatic research and for our research being too disjointed and fragmented. I would

submit that often our goal is not problem solving but "problem setting". Although criticized by others, I would maintain that such an approach is often an appropriate one, because in many cases what is needed is prescriptive -- how to -- knowledge (Miller, 1989). To know how to improve practice, what is often needed is simply good, solid descriptions of program activities and effects.

Grand Theories: A Worthy Goal?

Generalizations are closely related to theory, the difference being that theory specifies the relationship among a set of variables while generalizations concern the extent to which whatever relationships are uncovered in a particular situation can be expected to hold true in every situation. Cronbach (1982) concluded that social phenomena are too variable and too context-bound to lend themselves to generalization. He emphasized that data should be interpreted in context rather than reducing the context to arrive at generalizations, with local conditions becoming primary, and with helping "people use their heads instead of constructing generalizations and building theory". Rose (1960) supported this statement by noting that a tendency exists to over generalize in the social sciences and the logical conditions for extension of conclusions outside the data are not fulfilled. Generalizations have not held up well anyway as Thomas Huxley wrote, "History warns us it is the customary fate of new truths to begin as heresies and to end as superstitions." Cronbach concluded that, when the local context is considered, any generalization is a working hypothesis, not a conclusion. Stake (1978) quoted William Blake on the subject: "To generalize is to be an idiot. To particularize is the lone distinction of merit. General knowledges are those that idiots possess." This may be much like the conventional wisdom mentioned by Warmbrod (1993). Stake (1978) commented further that generalizations are not all despicable, but that particularization does deserve praise, and that by sensing the natural covariations of happenings in both intuitive and empirical manners is not idiotic.

Therefore, we may never be able to achieve the grand theories for which some would have us aim. Neither may we be able to make the broad generalizations of value-free knowledge, discoveries or laws some would have us be able to proclaim. Samuel Johnson noted, "As gold which he [sic] cannot spend will make no man [sic] rich, so knowledge which he [sic] cannot apply will make no man [sic] wise." Robert W. Service once penned a poem, which somehow seems appropriate here:

The Barnyard Door

When I was daft as urchins are, and full of fairy lore,
I aimed an arrow at a star and hit the barnyard door,
I've aimed at heaps of stars since then, but always its the same,
A barnyard door has been my foil, when Uranus was my aim.

Grandiose theories and value-free generalizations may be the ultimate stars for some of our more positivistic agricultural and sociological colleagues. Patentable discoveries may be what turns on a vice president for research. But, if we aim at those stars, then we are destined to hit the barnyard door.

Pragmatic Philosophy

I suggest we look elsewhere for our lost key. The key may not be found in the well lit dust of the road. The key may lie in what can be applied, in the identification of the problem setting, in a given context, and in a more pragmatic concept of our research philosophy. Let us not be swayed by the preferences of hard/basic scientists with positivistic inclinations. Carl Rogers (1969) wrote that in educational research "rigorous procedure is considered more important than the idea it is intended to investigate. A meticulous statistic and a sophisticated research design seem to carry more weight than significant observation of significant problems." Warmbrod (1991) and Persons (1992) also challenged agricultural educators to be much more concerned about the significance of our problems. Copa and Smith (1983) called for vocational education to address practical problems encountered by the practitioners. Positivists test their knowledge by seeing if it possesses coherence (can the statement be

logically validated for its theoretical soundness), correspondence (can the statement be verified in the real world) and clarity (can the statement be identified in the real world without ambiguity and vagueness). These three tests are propositions against which much of our research could not be confirmed.

Therefore, a pragmatic philosophy is more nearly in order. Pragmatists use a standard of "workability". Is the recommendation from the research "workable" in this situation. Truth may be place and time specific. The floating-hypothesis and unrealized generalization may trouble the more positivistic researchers. However, if it enables Extension agents to deliver programs to 4-H members in a more effective and efficient manner, then it is pragmatic and workable. If it helps alleviate hunger in a given country because it emancipates people to find their own solutions outside the existing infrastructure and power system, then so-be-it, because it "works". McCracken (1993) noted that educators must work within the context of society, and that we must give people a vision of who they can become. Schultz (1961) stated that the skills and knowledge people acquire are a form of capital, that this capital is a substantial part of a product of deliberate investment, that it has grown in Western societies at a much greater rate than conventional (nonhuman) capital, and that its growth may well be the most distinctive feature of the economic system. He also pointed out that the education of the agricultural producer has been the most neglected component of the production system.

A Research System

Ackoff (1974) noted that most of the real problems of society are **"A Mess"** of interrelated problems and not resolvable with common research methods -- they are a system of problems. Consider the "rural decay" problem in the United States today. Consider all the related disciplines which have a stake in that problem, just a few of which would be economic revitalization, educational, sociological, anthropological, medical, or environmental. The problems the public and the legislatures want addressed are often these "messy" problems. "Why is it that the research we have been funding has not found some magic solution to problems of at-risk-youth or the drug problem," they ask?

Ulrich (1988), in defining a program of research in such "messy," soft systems, poses that these are "practical problems", not unlike those faced by pragmatists such as agricultural/vocational educators. He notes that the practical intent is to bring more reason into actual social practice, that theoretical knowledge would bring some "objective knowledge" about some segment of the problem whereas practical reason is to secure ethically justified consensus among the stakeholders about norms regulating interpersonal relationships within our world of society. Freire (1987) wrote that knowing, whatever its level, is not the act by which a bit of knowledge is transformed into a subject who docily and passively accepts the contents others give; on the contrary, the curious presence of learners who are confronted by the world, they transform actions on reality with constant searching, invention and re-invention with each person undergoing critical reflection on the very act of knowing. Knowledge is not extended from those who know to those who do not. Knowledge is built up in the relation between human beings and the world, relations of transformation and reflects itself in the critical problematization of these relations.

Röling and Engle noted that people use knowledge to control their environment. When one considers affecting the whole agricultural knowledge information system (AKIS), it must be based on knowledge (1992). This knowledge is not just of technical (man-nature), but of the people: man-man and man-self. They further proposed that upstream knowledge (farmer to researcher) is ignored in the system. Therein, I suggest, lies a portion of our future, because, for an AKIS to be effective, users must wield effective user control. Researchers may see this as an attempt to control or dictate their research programs, but administrators, the leadership, must see this as a non-subversive factor and they must possess a broader vision of research and the AKIS. Kuhn (1970) metaphorically called for a revolution when institutions have "ceased adequately to meet the problems posed by an environment that they have in part created." Agricultural researchers may in fact soon experience a revolution from among the ultimate consumers/recipients of their work!

Habermas (1981) discusses two fundamental aspects of professional practice as being (1) work and (2) interaction. Work implies an expansion of technical control over objectified processes (such as the way we do things) -- pragmatically. Interaction implies an expansion of argumentative means for resolving conflicts of interests and needs through mutual understanding which amounts to the extension of control of the domination of man by man (power).

I would like to suggest that substantive research programs in agricultural communications could be couched in this man-man interaction, in the strategies of effective argumentation, in the methods to conflict resolution, and in the use of power. These programs could also investigate the prospects of empowerment (man-self). Such investigations could help prevent the potential coup for agricultural research. Social science researchers have usually aimed at reaching conclusions about society instead of at methods for changing society.

Capra (1982) pointed out that the change in paradigm from linear to systemic thinking is now gaining ground in all fields of knowledge. Such ideas have emerged slowly in agriculture, although we see some preliminary efforts to include systems theory in undergraduate programs. He notes that the social dimension of a truly rational, pragmatic systems theory is not yet adequately captured. When agricultural problems and research programs are considered this is still the case. Notice the paucity of social dimensions in the research programs of any experiment station or the USDA. A glimmer of hope is starting to emerge, however. The International Service for National Agricultural Research (ISNAR), an agency which aids countries in planning and evaluating agricultural research systems and programs, is now doing extensive publishing related to "soft systems methods".

The February 1992 USDA report on the "Research Agenda for the 1990s", a Report of the Planning and Budget Subcommittee of the Experiment Station Committee on Organization and Policy (ESCOP) identified research program areas and initiatives in environmental and natural resources; nutrition, food safety and health; developing value-added products, economic and social issues, animal systems and plant systems. A thorough reading shows few areas or initiatives which would fit outside the positivistic or hard systems models. Quality of life in rural America is eluded to in the publication but there is a paucity of reference to research which would investigate man-man or man-self interests. Similar conclusions would be reached as one examined the 1993 "National Research Initiative Competitive Grants Program", although some might want to argue that the section (62.0) on Rural Development is to provide a 'people' focus; however, the three areas supported all note (1) ... theoretical and methodological studies ..., (2) empirical studies ..., and (3) empirical research proposals ... (p 21). Buttel (1991) wrote that, "In large part the reason that farmers, often presumed to be the major beneficiary of public agricultural R & D, are ambivalent about research is obvious: agricultural research does not provide solutions to their problems, and there is the additional threat that agricultural R & D, which very substantially increases productivity, might exacerbate overproduction and reduce prices and farmers' income in the future. He later notes that the research programs have changed from benefitting the farmer to benefitting the private firm.

The Politic

Administrators (Vice Presidents for Research, Directors of Experiment Stations, Deans, etc.) who are setting research agendas with the positivistic problem solving frame of reference may be perplexed by this criticism. Schön (1983) pointed out the sense of unease and confusion emerging among such professionals. He noted that such professionals are most at ease in decision making when they can model established techniques and processes they have learned to apply to recurrent problems. However, he explained social reality has shifted from under the nineteenth-century division of labor, creating new zones of complexity and uncertainty, and created "messy" problems. "Professional practice has at least as much to do with finding the problem as with solving the problem found." How do administrators make sense out of the conflicting results of research, the babble of voices in their own profession with varying viewpoints, and the pressures of new voices emerging from environmentalists, animal rightists, and other groups.

Given their minimal levels of management training and narrow view of science, "it is difficult for them to imagine what might be meant by making sense of uncertainty, performing artistically, setting problems, and choosing among competing professional paradigms, when these processes seem mysterious in light of the prevailing model of professional practice" (Schön, 1983). The experiment station system has become institutionalized, with "what is" questions abounding, but with a paucity of "what could and should it be" questions. Thus, any research which appears soft, applied, about education, extension, communication, or hints of interpretative or critical science does not fit their model of "empirical" and, thus, is surely not worthy of support. Such research and thinking are an anomaly to them!

Problem setting is a process in which, interactively, we name the things to which we will attend, and frame the context in which we will attend to them (Schön, 1983). Positivism and technical rationality depends upon agreements about ends, but when ends are confused and conflicting, there is yet no problem to solve, because one has to make sense of situations which initially make no sense. Positivists tend to see science, after the fact, as a body of established propositions derived from research, but when their limited utility in practice is recognized, then a dilemma of rigor or relevance is experienced. Thus emerges cries from commodity and consumer groups about studies deserving of Proxmire's "Golden Fleece Award". Paarlberg (1992) noted that agricultural experiment stations are in transition, big-ticket, and called for interdisciplinary inquiry. Those interdisciplinary teams should necessarily include social and educational researchers.

One option for agriculture, Debetin (1992) noted, was to focus upon the well-being of people; while some would argue this is already being done by experiment stations, he called for a genuine focus on people to broaden the support base for agricultural research. Nitsch (1984), in studying Swedish farmers, found their needs to be not for more technical or economic information but for their personal development, stewardship of the land, and the "way of life". Nitsch (1988) later wrote that the Scandinavian society was asking of agricultural research and education, "Why should we spend more money on activity that contributes to increasing social and environmental harm? Why should we support an activity which contributes to the production of a surplus of commodities that cannot be sold at prices covering the cost of production? Are extension and research activities pursuing an activity that is not in the interest of either farmers or society at large?" If so, he stated, then the mission must be changed.

Your peers want your research to be rigorous. The director of the agricultural experiment station, agency, or foundation want rigor. Questions of relevance are ones which might be more appropriate than rigor for agricultural education researchers as we try to go about "problem solving" in a pragmatic (workability) manner. I (Miller, 1991) proposed that we consider soft systems methodology [SSM] (Checkland, 1981; Churchman, 1968; Ackoff, 1974; Raman, 1989) as a potential strategy for agricultural and vocational educators to employ because it deals with problem setting, and involves the stakeholders in the research process in the local context. SSM is not a method to necessarily employ in one specific study, but a philosophical basis for conducting inquiry. SSM's are called "soft" because the problems addressed do not have clear objectives, hard feedback mechanisms or boundaries. The system is a construct [concept (Adams, 1992)] and its objectives and boundaries depend on shared decisions and consensus. (See Figure 3).

SSM moves from finding out about a problem (problem setting) to taking action in the situation, via systems thinking. The first stage is to identify a problem situation (PS), (2) some human activity system (HAS) relevant to exploring the PS are named, (3) conceptual models (CM's) of the HAS are then built (See Adams, 1992) -- models of the purposeful activity considered relevant to the debate about the PS (not designs), (4) compare CM with the real world -- debate to find changes that are (a) systematically desirable and (b) culturally feasible, which produces decisions on (5) how to take action on the PS. The cycle continues. SSM accommodates conflicting interests and would fit well in the AKIS (Röling & Engle, 1992), agricultural education or vocational education.

Agricultural educators, extensionists, communicators and vocational educators have much which they can contribute to the resolution of many of the messy problems. Although I would not be so naive to think that the road to being a participant in research programs in agricultural experiment stations or with colleagues in other areas will not be strewn with roadblocks. Bromley (1992) related that agricultural economics must also become more applied or become extinct, which reinforced the position taken by Schuh (1986) when he stated that publishing is done for peers at the disadvantage of applied work and consulting for the highest paying firm is emerging as a desired end of the professorate. Most of our colleagues in agricultural research will always be discipline-specific, positivistic researchers. We must become better able to articulate our possible contributions to such research programs and communicate clearly and persuasively. Likewise, administrators and funders must look at their professional practice and be ready to bolt from the traditional, the archaic, and consider new ways of knowing and the importance of problem setting and pragmatic inquiry. They, too, must learn enough to seek us out and understand why they must do so!

Within colleges of agriculture, we have become academic cannibals: "eating our own"! Our internal criticisms of each other leak outside to our detriment! Beattie (1991) noted that this "internal war has to do with perceived irrelevance and inferior scholarship of many" and a war which must end if agricultural research is to survive. I have tried to illustrate a broader definition of scholarship, encompassing other ways of knowing, to alleviate such elitist criticism.

Implications for Graduate Study

Although systems thinking has been proposed to be included in undergraduate experiences through specific capstone courses, no semblance of such curricular revision is evident in graduate programs. Neither are considerations of other approaches to inquiry beyond the traditional positivistic approach included in preparing agricultural researchers. Should agricultural researchers have an appreciation for and understanding of social and behavioral science research and other paradigms for knowing? I would purport the answer is "yes". Evidently most faculty in the College of Agriculture do not currently perceive that this should be the case.

Agricultural and vocational education must also give serious thought to our graduate programs. The issue is much broader than just trying to include a course in qualitative methods into a structured quantitative preparation program. I believe we should consider including specific study in the philosophy of science and alternative paradigms. Perhaps as we do so, we will be enlarging the research preparation area to broaden our definition of scholarship, which can accommodate interpretive and critical science. Let us provide the tools for the next generation of agricultural and vocational education researchers to seek out the key in appropriate places.

References

Ackoff, R. L. (1974). Redesigning the future. New York: John Wiley.

Adams, D. (1992) The conceptualization process and vocational education management. Diamond Anniversary Lecture Series, Department of Agricultural Education, The Ohio State University, Columbus, Ohio, November 6.

Beattie, B. (1991) Some almost-ideal remedies for healing land-grant universities. Presidential Address, American Agricultural Economics Association, Manhattan, KS.

Bleicher, J. (1980) Contemporary Hermeneutics: Hermeneutics as Method, Philosophy and Critique. London: Routledge and Kegan.

Bonner, J. (1986) A century of science in agriculture: lessons for science policy. American Agricultural Economics Journal, 68, 1063-80.

Bromley, D. (1992) Vested interests, organizational inertia, and market shares: A commentary on academic obsolescence. Choices, 58.

Broudy, H. (1962) Building a philosophy of education. Englewood Cliffs, NJ: Prentice-Hall.

Buriak, P. & Shinn, G. C. (1989) Mission, initiatives and obstacles to research in agricultural education. A national delphi using external decision-makers. Journal of Agricultural Education. 30 (4), 14-23.

Buttel, F. (1991) The restructuring of the american public agricultural research and technology transfer system: Implications for agricultural extension. In W. Rivera & D. Gustafson (Eds.) Agricultural Extension: Worldwide Institutional Evolution and Forces for Change. Amsterdam: Elsevier.

Checkland, P. B. (1981) Systems thinking: Systems practice. New York: John Wiley.

Churchman, C. W. (1968) The systems approach. New York: Dell.

Coomer, D. (1984) Critical Science: Approach to Vocational Education Research. Journal of Vocational Education Research, 9 (4), 34.

Copa, G. (1984). Organizing knowledge for use: A basis for expanding the focus of research in vocational education. The Journal of Vocational Education Research, 9 (4). 1.

Copa, B. & Smith B. (1983). Selecting research problems in vocational education. Monograph. Office of Vocational Education Research, University of Minnesota.

Cronbach, L. (1982). Designing Evaluations of Educational and Social Programs. San Francisco: Jossey -Bass.

Debertin, D. (1992) There is a future for land grants, if .... Choices, 47.

Eisner, E.(1992). Are all causal claims positivistic? A reply to Francis Schrag. Educational Researcher. 21, (5), 8-9.

Enarson, H. (1989) Revitalizing the land-grant mission. Unnumbered manuscript. Blacksburg: Virginia Polytechnic Institute and State University.

Ertel, K. & Neveu, F. (1987) Vocational education research planning. Journal of Vocational Education Research, 12 (3), 1-17.

Freire, P. (1987) Education for Critical Consciousness.

Garrison, J. (1989). The role of postpositivistic philosophy of science in the renewal of vocational education research. Journal of Vocational Education Research, 14 (3), 39-52.

Geertz, C. (1973). The interpretation of cultures. New York: Basic Books.

Gregson, J. (1992). Effective pedagogical strategies for work attitude instruction. Journal of Industrial Teacher Education, 29 (3), 60-79.

Habermas, J. (1972). Knowledge and Human Interests. London: Heinemann.

Habermas, J. (1973). Theory and practice. Boston, MA: Beacon Press.

Habermas, J. (1975). Legitimation crisis. Boston, MA: Beacon Press.

Habermas, J. (1981). Theoris des komminikativen Handelus. Frankfort: Suhrkamp.

Hillison, J. (1990). Using all the tools available to vocational education researchers. Journal of Vocational Education Research, 15 (1), 1-8.

Jax, J. (1984). Ethnography: An approach to using interpretative science in vocational education research.
The Journal of Vocational Education Research, 9 (4), 8.

Keat, R. (1981). The Politics of Social Theory: Habermas, Freud and the Critique of Positivism. Oxford: Blackwell.

Krathwohl, D. (1985). Social and Behavioral Science Research. San Francisco: Jossey-Bass.

Krebs, A. (1976). Research in Agricultural Education from a Different Perspective. Proceedings of the Research Conference in Agricultural Education: Central Region, The Ohio State University, Columbus.

Kuhn, T. (1970). The structure of scientific revolutions. Chicago: The University of Chicago Press.

Lakes, R. (1992). Where are the intellectual in vocational education? Journal of Thought, 27 (1-2), 43-55.

Lakes, R. (1993). Advancing postpositivistic vocational education research. Paper proposal for the 1993 AVERA Research Conference.

Lather, P. (1991). Getting smart: Feminist Research and Pedagogy With/In the Postmodern. New York: Routledge.

Lewis, T. (1990). Toward a new paradigm for vocational education research. Journal of Vocational Education Research, 15 (2), 1-30.

Matthews, H. & Campbell, W. (1983). Observations on research in vocational education. In H. David, H. Hjelm & R. C. Harris (Eds.) Vocational education research in the 1980s. Proceedings of a National Conference. American Vocational Education Research Association.

McCracken, J. D. (1993). Educating agriculturalists: New wineskins for new wine, Diamond Anniversary Lecture Series, Department of Agricultural Education, The Ohio State University, Columbus, Ohio.

Miller, L. (1990). Checking the pulse of the discipline. American Association for Agricultural Education, Distinguished Lecture, Cincinnati, Ohio, 1990.

Miller, L. (Spring, 1989). An epistemology for knowing in vocational education. Journal of Vocational and Technical Education, 5 (2), 2-12.

Miller, L. (Fall, 1991). A systems approach to research in vocational education. Journal of Vocational and Technical Education, 8 (1), 25-34.

Miller, L. (1989) Making a "mess" of research in agricultural education. Keynote address, Proceedings of the Sixteenth Annual National Agricultural Education Research Meeting, Orlando, FL, December 1.

Nitsch, U. (1988). The legitimacy of the agricultural extension service, Agriculture and Human Values. December.

Nitsch, U. (1984). The cultural confrontation between farmers and the agricultural advisory service. Studies in Communication, (10) University of Linköping, Sweden.

Oakes, J. (1986). Beneath the bottom line: A critique of vocational education research. Journal of Vocational Education Research, 11 (2), 33-50.

Oliga, J. (1988). Methodological foundations of systems methodology. Systems Practice, 1 (1), 87-112.

Paarlberg, D. (1992) The land grant college system in transition. Choices, 45.

Persons, E. (1992). Did the value of education in agriculture go up today? Proceedings of the Nineteenth Annual National Agricultural Education Research Meeting, December 4, St. Louis, Missouri.

Popper, K. (1959). The Logic of Scientific Discovery. New York: Basic Books.

Pratzner, F. (1985). The vocational education paradigm: Adjustment, replacement, or extinction? Journal of Industrial Teacher Education, 22 (2), 6-19.

Raman, K. (1989). Systems Thinking in Planning Relevant Research. The Hague, Netherlands: International Service for National Agricultural Research, No. 89-62.

Ray, L. (1987). Reflections on classroom research. In G. Goswami & P. R. Stillman (Eds.) Reclaiming the Classroom. Portsmouth, NH: Heinemann.

Rehm, M. (1989). Emancipatory vocational education: Pedagogy for the work of individuals and society. Journal of Education, 171 (3), 109-123.

Rogers, C. (1969). Freedom to Learn. Columbus: Charles E. Merrill.

Röling, N. (1974). From theory to action. Ceres, May-June, 22-24.

Röling, N. & Engle, G. (1992) The development of the concept of agricultural knowledge information systems (AKIS): Implications for Extension. In W. M. Rivera and D. J. Gustafson (Eds.) Agricultural Extension: Worldwide Evolution and Forces for Change. Amsterdam: Elsevier.

Rose, A. (1960) Generalizations in the social sciences. The American Journal of Sociology, 49-58.

Schmidt, J. (1992). Vocational education research: Past, present and future. Journal of Vocational Education Research, 17 (1), 1-10.

Schön, D. (1983). The Reflective Practitioner. New York: Basic Books.

Schuh, E. (1968) Revitalizing land grant universities: its time to regain relevance. Choices. 6-10.

Schultz, T. W. (1961). Investment in human capital. The American Economic Review. 51 (1), 1-17.

Swanson, G. (1991). The future of agricultural education: A view from the bleachers. Journal of Agricultural Education, 32 (3), 2-8.

Ulrich, W. (1988). Systems thinking, systems practice, and practical philosophy. Systems Practice, 1 (2), 137-163.

Van Manen, M. (1975). An exploration of alternative research orientations in social education. Theory and Research in Social Education, 3 (1), 1-28.

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. Critical Inquiry, 6(3).

Wardlow, G. (1989). Alternative modes of inquiry for agricultural education. The Journal of Agricultural Education, 30 (4), 2-6.

Warmbrod, J. (October, 1991). Teaching, research and service: scholars and scholarship. Gamma Sigma Delta Distinguished Lecture, Louisiana State University.

Warmbrod, J. Scholarship in Agricultural Education: Its essence and mood. Diamond Anniversary Lecture Series, Department of Agricultural Education, The Ohio State University, Columbus, Ohio.

Warmbrod, J. (April 5, 1993) Research in Agricultural Education: Trivial Pursuit or Scholarship? Proceedings of the Southern Agricultural Education Research Meeting, Gatlinburg, TN.

Wirth, A. (1983). Producing work -- in industry and schools: Becoming persons again. Lanham, MD: University Press of America.